30th Congress, 2d Session. | SENATE. | Executive, No. 26.

LETTER

OF THE

SECRETARY OF THE TREASURY,

SUBMITTING

A report in reply to a resolution of the Senate of December 27, 1848, relating to the expenditures and results of the United States coast survey.

February 8, 1849.

Referred to the Committee on Finance, and ordered to be printed.

Treasury Department,
Washington, February 7, 1849.

Sir: I have the honor to submit, in pursuance of a resolution of the Senate of the 27th of December last, a statement of the expenditures for, and results of, the coast survey of the United States.

The report of the superintendent shows the expenditures which have been made from the direct appropriations, and the results which have been obtained, and are collected at the office of the survey, or have been published in the form of maps and charts, or furnished in the way of aids to navigation and commerce. Under the law, the employment of officers of the army and navy is authorized upon the work, and of men and vessels in the public service. I have requested from the Navy Department a statement of the additional expenditures from this source, being of opinion, however, that, unless so many officers and men should be employed on the work as to render an increase of the navy necessary, no real additional expense is thus incurred by the government. The officers of the navy being employed only in the hydrography, gain nautical experience and knowledge of the harbors, channels, shoals, &c., which is a valuable result to the country of the survey. A similar request, addressed to the Secretary of War in relation to the expenditures in his department, has received the reply herewith transmitted, in which he takes a similar view, in reference to his branch of the service, to that which I have just stated in reference to the navy.

The organization above referred to, by which civilians and officers of the army and navy are employed upon this work, is, I consider of great importance to the public service. The highest at-

tainments in theoretical and practical science, from the country at large, are secured by the power to select from all qualified persons, without regard to particular professions. The peculiar training of the officers of the army is of importance to the work. The nautical experience of the officers of the navy is of not less importance. The two professions gain in turn in knowledge directly available to the country, in cases for which there may be calls upon them. The entirely harmonious action of these three classes upon the survey, is a fact to which I bear willing testimony. It is to their joint co-operation, under this department, to which the work was early assigned, as relating especially to the commerce and navigation of the country, that the great progress of the coast survey is due.

The report of the superintendent shows that, owing to delays by the government in organizing the work, and to the necessity of procuring instruments, less than two years were actually employed in the survey from 1807 to 1819, (the first period referred to in the resolution of the Senate,) and that the expenditure was $55,372 12, of which, on closing the work, $18,247 39 were for property acquired in the form of instruments of admirable device and workmanship; that, when the schemes which had superseded this organized plan of work had proved entirely ineffective, and the coast survey was re established on its former basis in 1832, the old work was in a considerable degree lost, so that the coast survey, on its present plan, dates from 1832 only; that the organization, instruction of agents, and gradual development of the different parts of the work required several years, but that the progress onward has been an accelerated one, and has increased in a considerably greater ratio than the expenditures necessary to attain it. The amount appropriated and expended from 1832 to January, 1844, was $766,134 18, the annual appropriations ranging from twenty thousand dollars, in 1832, to one hundred thousand in 1843, as the work became organized and more developed. The expenditure from appropriations, from 1844 to January 1, 1849, is $579,250 32, ranging from $96,704 43 to $151,660 33, by the extension of the survey into the different sections of the Union. Of the sums thus stated as expended, $149,513 is on hand in instruments, vessels, equipments, and materials for engraving, printing, and the like.

The survey is complete and continuous, with exceptions covering but a small space from Cape Cod, Massachusetts, to the Virginia and Maryland line, its triangulation extending continuously from Maine to Virginia. It has made considerable progress on the coast of North Carolina, Alabama, Mississippi, and Louisiana, and has been commenced in South Carolina and Georgia, Florida and Texas. Its reconnaissance has extended over 41,000 square miles, its triangulation over 34,000 square miles, equivalent to a belt around the globe of a mile and three-eighths wide. The topography of the shores cover nearly 9,000 square miles, including an extent of shore line of 10,155 miles.

This topography is essential to furnish the basis for the hydrography, and to give to the mariner on approaching the coast an accurate idea of the form of the shores, capes, headlands, and other

natural and artificial objects. It is important also in reference to defence, and the work is carried so far from the shore as to embrace the nearest communication by land. The hydrography has covered an area of 24,709 square miles, and has included 1,758,349 soundings, at depths generally from one foot to one hundred and twenty fathoms. 1,410 soundings for temperature have been made in the gulf stream, in which 139,747 fathoms of line have been used. Numerous observations of tides and currents have been made, and characteristic specimens of the bottom of the sea collected. Six hundred and twenty manuscript maps have been made in 825 sheets, containing 11,215 square feet of drawing paper. If these were extended so as to occupy a width of one foot, they would reach more than two miles and one-eighth. The records of observations and computations of astronomical and geodetic work and hydrography, are contained in 1,928 volumes. The maps, charts, and records, are with difficulty accommodated for reference in a room 25 feet long by 18 feet wide. The discoveries made by the survey, enumerated in the report of the superintendent, are of the highest importance to navigation; and the improvements introduced or originating in the work, are hardly less so to science and the arts. Three new channels into New York and Delaware bays, and eleven shoals not marked on any previous charts, form a part of these discoveries. A new apparatus for measuring bases, the introduction of improved instruments and methods in the triangulation, in the geodetic, astronomical and hydrographic parts of the survey, of the electrotype process for copying engraved plates, of improvments in drawing, printing, and others, are mentioned in the list of the superintendent.

I have taken some pains to inform myself in regard to the relative cost of this and foreign works of a similar kind. Of these, two of the most important works, are those of France and Great Britain.

The tertiary triangulation and topography of France cost, on an average, one hundred dollars per square mile, or 15 cents and 6 mills per acre. This is exclusive of the cost of the great geodetic work by Delambre, Mechain, Biot, Arago, and others.

The estimates in 1847, for the secondary triangulation and topography of the trigonometrical survey of Great Britain, commenced in 1791, by the ordnance corps, are at the rate of $103 81 per square mile, or 16 cents and 2 mills per acre. This is exclusive of the army pay of the ordnance officers, but inclusive of the pay of three companies of sappers, numbering 315, employed upon the work.

The near approximation of these sums to each other indicate that they are standards of comparison; they average fifteen cents and nine mills per acre, which is between twice and three times the cost of an acre of secondary triangulation and of topography taken together, in the coast survey, as shown by the expenditures of 1847, '48.

The surveys of Wurtemburg and Hesse Darmstadt cost, respectively, 25 and 20 cents per acre.

Similar data for the cost of the hydrography in foreign countries

are not before me; but I may mention that the appropriations for hydrography alone, made annually by Great Britain as a contribution to the navigation and commerce of the world, have amounted in ten years—from 1837 to 1847—to more than four times the appropriation for the survey of the coast of the United States, land-work and hydrography both inclusive; and this is besides the appropriation for the trigonometrical survey.

When the information in regard to expenditures by the Navy Department is received, I will have the honor to transmit it to the Senate. The difference of emolument of pay of officers on leave and on coast survey service, and the pay and rations of men employed in the coast survey, were stated by the department (see doc. No. 57, H. R., 27th Congress, 2d session) to have amounted, up to 1841, to $114,584

When it was determined to abandon the use of steam in the revenue service as too costly, and to get rid of the steam vessels which had failed to effect any good purpose, and had been a burthen in repairs and reconstruction of between three and four hundred thousand dollars per annum to the department, an attempt was made to dispose of the vessels, but only nominal prices could be obtained for them. The department therefore determined to transfer the best of them to the naval service or to the coast survey, and to make light-boats of others. The direct saving to the government by the difference in the use of steam and of sailing vessels in the revenue, is estimated at upwards of $39,000 per annum. The repairs necessary to fit the vessels for coast survey use amounted to $4,440.

I have the honor to transmit herewith a letter addressed by me to the Committee of Commerce of the House of Representatives, setting forth these facts in detail. With the same view—to save great loss in the sale of vessels useful to the government—the quartermaster general of the army has, with the approval of the Secretary of War, transferred certain vessels, no longer of use in his department, to other branches of the public service, and among them one small steam vessel and two schooners, to the coast survey. The work of the survey in the southern sections requires that each land party, as well as the hydrographic parties, be furnished with a small vessel as a means of transportation and in which to live.

I beg leave, in conclusion, to refer to my report to Congress, at the commencement of the session, for my opinion in regard to the progress and conduct of this important work.

Very respectfully, your obedient servant,

R. J. WALKER,
Secretary of the Treasury.

To the honorable GEORGE M. DALLAS.
Vice President of the United States,
and President of the Senate.

TREASURY DEPARTMENT,
Washington, January 5, 1849.

SIR: To enable me to answer fully a call by the Senate of the United States for information in reference to expenditures in the survey of the coast of the United States, I would respectfully request that you will give me your opinion as to whether the pay and emolument of the officers of the army on duty on the coast survey should be considered chargeable in whole or in part to expenditures in that work, or to general expenditures for the army; and if you deem that any part is chargeable to the coast survey, then to direct the proper officers to furnish me with the amount thus annually expended, from 1807 to 1819, from 1834 to 1844, and from 1844 to 1849.

I would also respectfully request you to state what has been, in your opinion, the increased expenditure in the military service, if any, consequent on on the use of a part of the officers in the coast survey.

Very respectfully, your obedient servant,
R. J. WALKER,
Secretary of the Treasury.

Hon. W. L. MARCY,
Secretary of War.

TREASURY DEPARTMENT,
Washington, January 5, 1849.

SIR: In document No. 28, House of Representatives, 27th Congress, 2d session, page 7, I find a letter from your predecessor, the Hon. A. P. Upshur, to the Secretary of the Treasury, Hon. Walter Forward, communicating the following information requested by Mr. Forward's predecessor, the Hon. Thomas Ewing, in answer to a resolution of the House of Representatives relating to the sum indirectly expended upon the coast survey by the employment of part of the naval force therein from the month of September, 1834, to November, 1841, viz:

The difference between the leave of absence pay of the officers employed and their pay at sea,	$25,725
Amount of officers' rations,	9,222
Pay of the crews of the vessels employed,	54,379
Rations of the crews,	25,258
Total,	$114,584

To enable me to answer a call from the Senate of the United States, I would respectfully request that you communicate to me the corresponding particulars from the date of Secretary Upshur's statement to the close of 1848, distinguishing between the several amounts expended prior to January, 1844, and subsequent thereto.

As the officers when not at sea are not unusually on leave of ab-

sence, I submit whether the difference of pay should not be that between other duty and sea service, for the time when the officers on coast survey service are allowed sea pay; and indeed, whether you consider the pay and rations of the officers of the navy on coast survey service properly chargeable to expenditures for the coast survey.

I would also respectfully request you to state what has been, in your opinion, the increased expenditures, if any, in the naval service consequent on the use of a part of the officers and men in the coast survey.

Very respectfully, your obedient servant,

R. J. WALKER,
Secretary of the Treasury.

Hon. JOHN Y. MASON,
Secretary of the Navy.

WAR DEPARTMENT,
Washington, January 8, 1848.

SIR: I have the honor to acknowledge the receipt of your letter of the 5th instant, asking whether, in the opinion of this department, any portion of the pay and emoluments of the officers of the army engaged from time to time on the coast survey should be reported, under a call of the Senate, as part of the expenses of that work, and whether there has been any increased expenditure in the military service consequent on the use of a part of the officers and men in the coast survey.

Upon inquiry, I learn that it is not supposed there has been any increase of the expenses of the military establishment arising from the employment of officers in the manner stated. It is understood that the officers detailed on that duty were such as, it was supposed, could be spared without detriment to the service, and were recalled when needed in their proper departments.

It is possible, however, that some of them received, previous to 1842, a per diem allowance for expenses, or additional pay in some other form. The accounting officers only could state the amounts so received, if any, on being furnished with the names of the officers, and their names could only be furnished from the records of the coast survey, as in this department officers so employed are generally designated as on detached or special service, without any description of the nature of the special service to which they may be assigned by the department under whose orders they may be placed.

Very respectfully, your obedient servant,

W. L. MARCY,
Secretary of War.

Hon. R. J. WALKER,
Secretary of the Treasury.

TREASURY DEPARTMENT,
Washington, January 19, 1849.

SIR: I have the honor to acknowledge the receipt of your letter of January 15th, enclosing a resolution of the Committee of Commerce of the House of Representatives, requesting the Secretary of the Treasury "to state what number of vessels belonging to the revenue marine have been employed in the coast survey—for what reasons—what amount of expense has been saved thereby, and how much incurred in addition to the regular appropriations for the coast survey."

The vessels belonging to the revenue marine which have been transferred to the coast survey are the steamers Bibb, Legare, Walker, and the schooner Ewing; for the latter the coast survey schooner Gallatin has been temporarily exchanged, and is doing the full duty of the Ewing on the New York station. Besides being used for the important survey of the coast of Oregon, the Ewing will be employed in an examination of the sites for light-houses at the mouth of Columbia river—for which an appropriation was made, and placed under the direction of the Secretary of the Treasury, at the last session of Congress—and at other points, and in determining the positions for buoys, &c. The laws of 1807 and 1832 authorize the employment of public vessels in the survey of the coast, and I have regarded the immediate survey of that part of the western coast over which our revenue law is extended as an important duty, to be facilitated by every means which the law places at my disposal, and likely to yield immediate and beneficial fruits to commerce and navigation.

The circumstances which induced the Treasury Department to abandon the use of steam vessels in the revenue marine, are stated in the report of the chief of the bureau (Captain Alexander V. Fraser) accompanying the report of the acting Secretary of the Treasury, made to Congress on the 26th of January, 1848, (Ex. Doc., No. 30, 30th Congress, 1st session.) This officer remarks: "Experience having fully established the fact that the duties of the revenue marine will not justify the great expenditure consequent upon the employment of steam vessels; and the greater efficiency of the small sail vessels heretofore employed for that particular service, and the failure of most of the steamers to meet the reasonable anticipations of the department, it has been determined to make such disposition of them as will be most economical and useful to the government, and relieve immediately this branch of the public service from the expense of their maintenance. With this view the circular marked A was issued, and it was decided to transfer a portion to the coast survey, and to convert such as are of most objectionable model into floating-lights. The necessary arrangements for carrying this determination into effect are being made, and will result in saving to the government several hundred thousand dollars."

Again: "The total expenditure, on account of the service, for the fiscal year ending the 30th June last, amounted to the enormous

sum of $501,532 24; of which $328,407 01 was expended in fulfilment of contracts, entered into prior to March 4th, 1845, on account of the construction and maintenance of the worthless steamers, and for which the faith of the government was pledged. These contracts being now nearly closed, the recent arrangement will relieve the government of this useless expenditure, and reduce it to the sum of $175,000 per annum. It was supposed that some of the steamers might be disposed of advantageously to private individuals, to be used for freighting or other purposes; and, with that view, on the arrival of the McLane at New Orleans, notice of sale was given in the papers of that city and Mobile during the whole of one month, and proposals invited. Steamers of every description, adapted to ocean navigation, met with ready sale and high prices at that place. The result was, that for this vessel, which had cost the government one hundred and twenty thousand dollars, but one solitary bid was received—and that for three thousand dollars. What further evidence is necessary to exhibit the entire failure of the plan?

"But although the government has failed to get rid of the vessels, the experiment has furnished full and incontestible evidence of the real value of this one, and all of similar description. The models of the Legare and Jefferson, which were among the number first constructed, are unexceptionable; one is furnished with Ericsson's, and the other with Loper's propeller, and would be an acquisition to any service where the duties would justify the expenditure for their maintenance."

The circular referred to was issued by me on the 8th October, 1847, and is appended to the foregoing report. It contains the expression of conclusions to which the department had arrived at a previous date. "It appears, that the expenditures on account of the revenue marine, for the last fiscal year, greatly exceeded the sum which, in my opinion, ought to be disbursed for the service. No censure, however, can be attached to any one on this account. These large expenditures have grown chiefly out of the construction and employment of steam vessels.

No contract for the building of any steam vessel has been made by me. These contracts were all entered into by my predecessors in office. From the information placed before my predecessors at the time these contracts were made by them, the construction of these vessels for the revenue marine, was no doubt deemed by them highly useful and beneficial. Entertaining, however, a contrary opinion, almost immediately after entering upon the duties of this department, I suspended the farther execution of all contracts for the construction of these steam vessels not already completed.

Upon appeal, however, by the parties concerned, from my decision for the opinion of the Attorney General of the United States, it was decided by that officer, that these contracts were obligatory in law upon the government, and after a careful investigation, concurring as I did in that opinion, and unwilling to violate the faith of the government plighted to individuals, under competent authority by my predecessors, I was reluctantly constrained to re-

voke the suspension of the contracts, and permit the construction of these vessels to proceed. These contracts being brought, however, now almost entirely to a close, and the faith of the government being no longer implicated thereafter, in a continuance of such expenditures, I have resolved to bring them to a close.

To accomplish this most desirable object, and save thereby, annually to the government a very large expenditure, amounting to several hundred thousand dollars, it is determined to dispense with all future expenditures, (except payments now due,) on account of steam vessels for the revenue marine. Such of these vessels as are not fit for sea service will be converted into light ships, in which capacity they will be exceedingly useful, the machinery being first taken out, and sold for the benefit of the government, on previous advertisements to the highest bidder for cash at public auction. The remainder of these vessels can be rendered highly serviceable in the navy and the coast survey, but are not at all adapted to the revenue marine.

This being accomplished, it is determined to reduce the whole expenditure for the revenue marine, after the first day of November next, to an annual sum not exceeding in the whole one hundred and seventy-five thousand dollars."

The Bibb being transferred to the coast survey in the middle of the surveying season, and after a protracted voyage from New Orleans to Boston, which fully demonstrated her worthlessness as a passenger or a revenue vessel, could not be put in order before transferring her to the coast survey without losing the surveying season on Nantucket shoals, but I deemed it but equitable to have her put in order as would have been done under other circumstances; the cost of the repairs was $2,155. The Legare was put in order before the transfer to the coast survey at an expense of about $2,285, and since $1,402 07 has been expended in bringing to a conclusion the experiments heretofore ordered by the department on Ericcsson's fresh water apparatus as applied to marine steam boilers. These experiments were undertaken by my direction as of importance to steam navigation on the ocean, and without any connexion with the coast survey, to which the expenditure is in no way chargeable.

The amount of expenditure to the revenue marine, saved annually by the transfer of these vessels, and which is a subject of inquiry by the committee, is estimated at not less than $39,000, being the estimated cost of running and current repairs, &c., exclusive of the pay of officers and men, over and above what would be the cost of a sailing vessel effectually to do the same work in the revenue service.

The expense of these vessels is now entirely borne by the coast survey appropriation, no expense being incurred from the revenue for running or repairs. Considering the various alterations required from year to year, and the rapid deterioration of the vessels and machinery, requiring frequent and costly renewal of the boilers, engines, &c., the department has estimated, as heretofore stated,

the gain by abandoning the use of steam at several hundred thousand dollars.

Though defective in form, and hence in speed, for revenue purposes, and unable to keep the sea effectively to succor vessels in the winter on our coast, the vessels are reported to perform reasonably well at the moderate rates of speed required in surveying, when the wind is not very unfavorable, requiring only a moderate expenditure of fuel, and comparatively slight repairs. While they facilitate a work so important to the interests of commerce and navigation as the coast survey, the revenue is relieved from a considerable burthen in the cost of vessels inadequate in power and speed to revenue purposes, and extravagant in consumption of fuel and repairs, when attempts are made to push them at such speeds as our steamers usually attain without difficulty.

The engines of the revenue steamer Polk being of good workmanship, while the price offered for them was insignificant compared with their cost, and the model of the vessel being good, I have directed the engine to be removed to the steamer Jefferson, and such alterations to be made in the Polk as would make a good sailing vessel of her, to take the place of the schooner Gallatin, now at New York, and intending to transfer the Jefferson when completed to the coast survey. The government will thus, at the cost of about twenty thousand dollars, have two vessels well adapted to their respective purposes, and save their entire sacrifice by sale, the proceeds of which would not pay for building one sailing vessel such as the Polk will be when altered.

The construction and equipment of the C. W. Lawrence, which has gone for the protection of the revenue, to Oregon, and of the six cutters authorized by act of Congress at the last session, will, it is believed, not cost as much as one of the steam vessels of which the department has been so well pleased to be rid, while each will be effective for the service required.

For the very obliging terms in which you communicated the resolution of the Committee of Commerce, I beg to tender my thanks. I have in this matter labored, as you supposed, for the good of the public service, and have endeavored, under the difficult circumstances of the case, to take such a course as was in my judgment promotive of efficiency and economy to the revenue service, sanctioned by the law, and calculated to be serviceable to the commerce and navigation of the country.

Respectfully,

R. J. WALKER,
Secretary of the Treasury.

Hon. WASHINGTON HUNT,
Chairman Committee of Commerce, House of Reps.

Report of the Superintendent of the Coast Survey to the Secretary of the Treasury on the expenditures and results of the work.

COAST SURVEY OFFICE,
Washington, February 5, 1849.

SIR: In compliance with your directions I have the honor to submit a report which will furnish you with the information required by the following resolution of the Senate of the United States of December 27, 1848, as far as the information is in this office.

"*Resolved*, That the Secretary of the Treasury be requested to cause to be communicated to the Senate the expenditures for the survey of the coast from the time of its commencement, in 1807, to the period when the work was discontinued, and the results obtained; the expenditures from the period when the work was resumed, in 1834 to 1844, and the results obtained; the expenditures and results since 1844 up to the present time under the present superintendent."

The expenditures for the work, the accounts for which pass through this office, are represented by the appropriations made, with exceptions which will be stated, and which make the net expenditures less than the amount appropriated. The law requires the employment of officers of the army and navy upon the work, without extra pay, and their regular pay is estimated for by the War and Navy Departments. It is believed that no increase of officers in either service has been made in consequence of its connexion with the coast survey. In the letter of the Secretary of War, which you have caused to be communicated to this office, he states that no additional expense has been incurred in his branch of the service by the details which have been made of officers for the coast survey. As the officers of the navy receive pay for sea service while they are afloat engaged in surveying operations, while, if not attached to the coast survey, they would be on what is termed other duty, or else on leave of absence, the amount of difference of emolument should be considered as chargeable to the coast survey. The pay and rations of the seamen employed on the coast survey vessels are also thus chargeable, and occasional repairs made to particular vessels of the survey, the repairs generally are made from the appropriations for the work. The Treasury Department has, I am informed, applied to the Navy Department to obtain the amount of these items, in a letter corresponding to that addressed to the War Department, hereto appended, and under the same date. These items of pay and rations were stated, in 1841, to amount, up to November, 1841, to $114,584, (House of Reps. Doc. No. 57, 27th Congress, 2d session.) The extra pay formerly allowed (prior to the law of 1843) to the officers of the army and navy serving upon the coast survey, was paid out of the annual appropriations for the work. If it met the approval of the Navy Department, the pay of the officers and men from the navy might hereafter be included in the coast survey estimates, with the advantage of showing upon our records the total expenditure for the work.

Part of this expenditure is for work done, which is reported annually by the superintendent to the Treasury Department, and communicated to Congress, the geographical limits of the fieldwork being stated and laid down in sketches, the amount and character of work, and the persons by whom executed being given with considerable particularity. The results are deposited in the office of the survey in the form of maps and charts, and books of observations and computations, and being reduced and put in form, appear in the engraved maps and charts which are published at the office. Part of the expenditure is for property acquired, which remains on hand with a certain amount of deterioration readily estimated.

The resolution calls for a division of the expenditure and results into periods. The first from the passage of the law authorizing the coast survey to the suspension of the work in 1818. It will be seen from my notes on this period, that the actual survey was not begun until the summer of 1816, and was closed in the spring of 1818, extending over two years only, and that although $183,725 39 was appropriated for the work, only $55,375 12 was expended, of which $18,247 39 remained on closing the work, in the form of instruments.

The survey, which was suspended by the act of 1818, was revived by that of 1832. The preliminary operations of 1816 and 1817 were but partially available on recommencing the survey in 1832, from which latter period, therefore, it dates its effective beginning. The first years were necessarily years of organization and instruction. The superintendent, Mr. Hassler, had to systematize methods, to train up assistants, to cause the work to grow from a small beginning until it comprehended the various operations of a geodetic survey of the coast and included its hydrography. When the results accumulated it was necessary to provide for their computation and reduction, and the preparation of maps and charts upon a plan suited to our extended coast, and the engraving of the maps. All these things were new in this country. The amount of knowledge, skill, and labor required to overcome these and other difficulties, were hardly appreciated. The results show how large an amount of work had been done, and how the work was extending beneficially at the time of Mr. Hassler's death.

Building upon this foundation, it was easy for Mr. Hassler's successor to give further developement to the work. The principle adopted was, that as a given extent of coast was to be surveyed, the more rapidly it could be done consistent with accuracy, the better; because, the sooner the fruits of the work would be realized. Economy would thus be consulted by the division of labor which becomes practicable. The extension of the work into the southern part of the United States, would, by furnishing field work in the winter, when the season is disadvantageous for such work to the north, facilitate the division of labor. The materials for organization were generally at hand, and of these I have endeavored to avail myself. The division of the coast of the Atlantic and Gulf of Mexico into nine sections, and the execution of the survey simultaneously in as many of these as the means placed at

my disposal permitted, formed a part of this plan which was submitted in my report to Congress in 1846.

In this method, the measured bases which will, when the survey is connected, verify each other, are used as bases of operation while the parts are detached. If all the sections of the coast had equal extent and facilities for survey, and all were begun at the same time, the period of completion of the whole would be reduced to that of one of the sections.

As the sections have been commenced at different periods and the operations of the survey can only be introduced in succession, until all are going on at the same time, the proportion of the results of the different kinds of work to each other are not in all cases what they will finally appear.

In stating the results of the survey and its expenditures, I have given *first*, (I.) a general view of the whole of the results of the work; *second*, (II.) a tabular view of the whole, and of the results and expenditures by periods, as called for by the resolution of the Senate; *third*, (III.) a more extended statement of the expenditures and results in each period; and *fourth*, (IV.) detailed lists of the observations and computations made, of the maps and charts produced, of the instruments, books, machinery, tools and materials, equipage, vessels, &c., which are the property of the survey.

In the course of the survey, important discoveries are made of channels, shoals, and rocks, and improvements of value in scientific methods or instruments, and in practical operations, are introduced. I have briefly referred to these in lists which precede the tables of results.

I.—*General view of the results of the work.*

The entire survey of the coast from Cape Cod, Massachusetts, to the Virginia line, is completed with very few exceptions, and the triangulation extends in one continuous chain from Maine to Virginia.

The work has been commenced in North Carolina, where Albemarle, Croatan and Roanoke sounds, and the rivers emptying into Albemarle sound, have been surveyed. In South Carolina and Georgia, the coast of which a general reconnaissance has been made where the preliminary base has been measured, and the triangulation and astronomical work commenced. In Florida, where reconnaissance is in progress. In Alabama, Mississippi and Louisiana, where the work extends from Mobile bay, to the lakes back of New Orleans. In Texas, where Galveston bay is under survey. The work in each of these sections will be extended to meet that in the others, so as finally to form a continuous survey, using, meanwhile, the bases which would necessarily be measured to verify the observations, for the purpose of beginning the survey at important points. In six years the triangulation north of Cape Hatteras, which rests upon the Bodies' island base, (North Carolina,) will meet that from the Chesapeake, and the Kent island, (Maryland,) and Bodies' island bases serve to verify the intermediate

work; meanwhile, one has been used to survey the Chesapeake, and the other Albemarle sound, and the dangerous coast north of Hatteras. This extension of the work has required increased expenditures, but not in the proportion of the additional work. In no other way could the most dangerous and most important parts of the coast have been under survey at the same time, but the more important, would necessarily, in many cases, wait upon the progress of the less important.

At the rate of the appropriation, prior to 1846, and extending the work only from its north and south ends, the survey could not have reached New Orleans in thirty years. Mobile and New Orleans will be connected by triangulation during the present year.

The following quantities express the extent of the different operations of the survey to 1849, as far as the results have yet been returned to this office.

Reconnaissance 41,207 square miles. Triangulation 34,242 square miles. Astronomical stations 61 in number. Magnetic stations 98. Base lines measured 5. Preliminary bases 5. Area of topography 8,977 square miles. Extent of shore line 10,155 miles. Hydrography area 24,709 square miles. Number of soundings 1,758,349. Soundings for temperature in the gulf stream 1,410. Fathoms of line run out 139,747. Number of current stations 160. Number of tidal stations 53. Number of specimens of bottom 4,598. Manuscript maps and charts 621 in number, containing 977 sheets; and an area of paper of 11,215 square feet. The records are contained in 1,928 volumes. There are 29 engraved plates, and 8 copies by the electrotype process. The number of sheets of maps printed is 24,249; the number distributed to literary, scientific and commercial institutions 7,678. The number of volumes in the library 655. The value of instruments, books, equipments, vessels purchased, &c., on hand is $149,513.

DISCOVERIES BY THE COAST SURVEY.

Prior to 1844.

Gedney's channel into New York harbor.
Blake's channel in Delaware bay.
Blunt's channel into Delaware bay.
Many rocks in Long Island sound.
Complete soundings first made of through channel to Breakwater and Ricord's channel.

Since 1844.

The new south shoal, near Nantucket, (1846.)
The ridges near the new south shoal.
Thirteen foot shoal in Vineyard sound.
Two shoals with 14 and 16 feet of water, respectively, in the channel, eastward of Bass rip and south and east from Great Point light, (1847.)
Six new shoals near Nantucket, the most distant with 10 feet of water on it, and 14½ miles from land.

The remarkable increase of Sandy Hook, traced from these surveys and those of the topographical engineers.

The changes in the Delaware river, near the Pea Patch, traced in a similar way.

Horn island channel, on the coast of Mississippi, first sounded out.

Muskeget channel into Martha's Vineyard sound, first sounded out.

McArthur's shoal, at the mouth of Choptank river, Chesapeake bay.

Shoal near Sharp's island first sounded out.

Many rocks in Buzzard's bay and the Vineyard sound.

Twenty-one feet water in the channel into Mobile bay.

IMPROVEMENTS MADE BY OR INTRODUCED INTO THE COAST SURVEY.

The following list refers briefly to improvements which have been introduced upon the coast survey and perfected in the work, or to inventions made in connection with it:

Improvements have been made or introduced in instruments and methods of observations in geodesy and astronomy.

1. An apparatus for measuring bases, combining the principle of contact with invariable length at different temperatures, and when the temperature is rising or falling.

Improvements in the apparatus for measuring expansions.

2. Improved instruments introduced for observations adapted to the triangulation of the southern coast. The details of signals and other accessories of this work and modes of observing much improved.

Improvements in the dividing machine for circular instruments in the examination of the centering, &c.

3. Talcott's method introduced for latitudes, and the zenith and equal altitude instrument improved for use by this method. Zenith sector introduced. Comparisons of different instruments and methods of determining latitudes for geodetic purposes.

Discovery of local attraction deflecting the plumb line from the vertical in places where the topographical features of the country would not beforehand show the existence of such deflection. The remedy found for such irregularities and applied.

4. Methods of observing azimuths improved, and computations simplified.

5. Methods of observing difference of longitude by telegraph perfected. This method was first used to measure an arc of the parallel by the coast survey.

Application of the galvanic circuit to purposes of registering astronomical observations generally.

The mathematical theory of telegraphic longitudes was first developed in this work.

6. The modern magnetic instruments and methods have been introduced upon the work, and persons have been trained up to their use.

7. Lehman's system of topography has been adapted to the character of our coast. Scales of shade prepared by the ruling machine have been introduced.

8. Many improvements in hydrography have been made or introduced. The system of lines of equal depth in making soundings. The collection and classification of specimens of the bottom obtained by the Stellwagen lead. Systematic tidal observations are made and discussed in forms duly prepared. The observations of currents have been reduced to a system, and modes of representing them on diagrams introduced. Triangulation by vessels for offshore work has been introduced. Measurement of angles regulated by time. The representation of character of the bottom by abridged signs has been matured.

9. Systematic observations of the temperature of the gulf stream at different depths, and on different sections across the stream, have been made with new instruments, and represented on diagrams. The separation of the gulf stream into two or more branches has been discovered, and the equilibrium of temperature from the depth of about forty fathoms to the greatest depths explored. Mechanical contrivances for making deep sea soundings, reeling up the line, &c. The "cold wall" between the coast and gulf stream has been defined by observation from Cape Hatteras to Cape Cod.

10. Improvements in the accessories of hydrography have been introduced. The coloring of buoys has been systematized. The officers of the survey have rendered service in selecting places for buoys and in placing them, in selecting sites for light-houses, in examining reefs and rocks in reference to their removal.*

11. In the reduction of drawings many improvements have been made or introduced. The camera lucida has been introduced. The apparatus for reducing by squares has been perfected. The method of printing maps has been improved, so as to do away or diminish distortion.

12. Many improvements in the details of engraving have been introduced. The electrotype method of copying engraved plates was used first in this country on the coast survey, and permits the indefinite multiplication of maps from one original engraved plate.

13. Systematic methods of computation, including printed forms for all the different kinds of work, have been introduced.

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* The plan for making secure the navigation of Hurl Gate was furnished by the coast survey.

Results of the Coast Survey at different periods from 1807 *to* 1849.

	From 1807 to 1819.	From 1832 to 1844.	From 1844 to 1849.	Totals.
Reconnaissance, area in square miles	560	18,103	22,544	41,207
Triangulation.....do.....do	450	14,483	‡19,309	34,242
Extent of coast line	.....	310	405	715
Extent of shore line, reckoning bays, sounds, &c.	.....	3,215	4,211	7,426
Astronomical stations, number of	3	11	47	61
Magnetic.....do.....do	0	10	88	98
Vertical angles .do.....do	0	7	34	41
Base lines.....do	0	1	4	5
Preliminary base lines.....do	2	0	3	5
Topography, area in square miles	0	6,222	2,755	8,977
Length of shore line	0	6,100	4,055	10,155
Hydrography, area in square miles	0	*9,623	†15,086	24,709
Hydrography, number of soundings	0	808,147	950,202	1,758,349
Gulf stream, number of soundings for temp.	0	0	1,410	1,410
Gulf stream, fathoms of line	0	0	139,747	139,747
Current stations, number of	0	0	160	160
Tidal.....do.....do	0	13	40	53
Specimens of bottom do	0	500	4,098	4,598
Total number of manuscript maps	0	326	295	‖621
Of these manuscript maps, number prepared in office, being reductions, &c	0	29	123	152
Original topographical maps, number of	0	160	100	¶260
Containing sheets, number of	0	298	131	429
Originals charts, number of	0	103	72	§175
Duplicates	0	34	0	34
Containing sheets, number of	0	236	160	396
Records, triangulation, bases, &c				
No. of volumes	4	95	233	332
Astronomical observations, &c., No. of vols.	1	16	140	157
Computations, geodetic.....do	1	78	138	217
Computations, astronomical.....do	2	4	138	144
Magnetic observations.....do	0	4	37	41
Magnetic computations.....do	0	0	15	15
Geodetic books, duplicates .....do	1	26	128	155
Meteorological books.....do	0	2	7	9
Meteorological books, duplicates....do	0	0	3	3
Original hydrographical books, soundings, and angles, number of volumes	0	179	380	559
Duplicate hydrographical books, soundings, angles, number of volumes	0	27	32	59
Hydrographic books, tidal, and current observations, and tidal reductions, number of volumes	0	8	158	166
Astronomical differences of longitude	0	0	66	66
Total of records	9	439	1,373	1,928
Engraved plates of maps.....number of	0	5	24	29
Engraved plates, electrotyped.....do	0	0	8	8
Published maps.....do	0	0	21	21
Printed sheets of maps .....do	0	0	24,249	24,249
Printed sheets of maps distributed.....do	0	0	7,678	7,678
Printed sheets of maps sale agent.....do	0	0	12,979	12,979
Volumes in the library	.....	.....	.....	655
Instruments, &c., value of	.....	.....	.....	$149,513

*5,000 of off-shore work. †11,000 of off-shore work. ‡In sections III, IV, VIII, and IX the primary and secondary triangulation are united in general. §Coast line, including islands bays, &c. ‖11,215 square feet of paper. ¶4,056 square feet of paper. §5,891 square feet of paper.

III.—EXPENDITURES.

The expenditures from direct appropriations for the coast survey have been according to the statement of the general disbursing agent, hereto appended, (marked A.)

From 1807 to 1819.....	$55,375 12
1832 to 1844.....	766,134 18
1844 to 1849.....	576,481 63
	1,397,990 93
From which deduct the value of property on hand.	149,513 30
Leaves for the cost of the operations.....	1,248,477 63

To this must be added for sale of property, including maps and charts, between 1844 and 1849, $2,768 69.

There should be further added, if deemed proper by the department, the difference between the duty emoluments of the officers of the navy on coast survey service and other duty, or on leave of absence, and the pay and rations of the petty officers and men employed during parts of the year. Also the cost of repairs to such vessels as have been repaired by the Navy Department. The officers of the navy when engaged in hydrographic operations afloat receive sea pay, when in the office the pay of "other duty."

The extra pay formerly allowed (prior to 1843) to officers of the army and navy, serving on the coast survey, was derived from the direct appropriations.

The sum of $4,440 was paid through this office from the revenue, for the repairs of revenue steamers, to put them in order for transfer to the coast survey. In one case, though the repairs were needed at the time of transfer, they could not be then made without losing an important part of the surveying season. I do not consider these repairs as properly chargeable to the coast survey.

Remarks on the period from 1807 *to* 1819.

Between these periods, less than two years were really occupied in the survey. Four years and a half were taken up by the executive in maturing the plans; four years in making in Europe the instruments required for the work. The appropriations ceased after 1816.

The act of Congress for the survey of the coast passed in February, 1807. In August, 1811, Mr. Hassler was sent by the Treasury Department to Europe, to procure instruments, chiefly from original designs of his own. The instruments were finished in July, 1815, and Mr. Hassler returned in October, 1815.

The appropriation of 1816 enabled Mr. Hassler to begin to survey in July, 1816, and the work was stopped in April, 1818, two surveying seasons having been employed. The results were nearly as follows:

Reconnaissance (estimated at) 760 square miles; preliminary bases measured, 2; triangulation, 450 square miles in New York and New Jersey. Record books: Triangulation and computation, 3; astronomical observations and computations, 2; duplicates, 2.

The instruments procured were much in advance of those in use, even in Europe, in that day. They remained the property of the government. Their cost, with that of books purchased, was $18,247 39.

From 1807 to 1816, there was appropriated $183,725 39, of which $79,006 82 was carried to the surplus fund, and $49,345 45 transferred to the War Department on closing the work, leaving $55,375 12 as the real expenditure for the work and instruments.

General view of the results and expenditures of the coast survey, according to the periods designated in the resolution of the Senate of December 27, 1848.

I.—WORK DONE.

1. RECONNAISSANCE.

1817 to 1819....	560	square miles.	
1832 to 1844....	18,103	"	(estimated.)
1844 to 1849....	22,544	"	(estimated,) including reconnaissance in all the States on the Atlantic and Gulf of Mexico.
Total.....	41,207	"	

2. TRIANGULATION.

1817 to 1819....	450	square miles.	
1832 to 1844....	14,483	"	Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, Maryland.
1844 to 1849....	19,309	"	Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Delaware, Maryland, Virginia, North and South Carolina, Alabama, Mississippi, Louisiana, and Texas.
Total.....	34,242	"	

3. ASTRONOMICAL STATIONS OCCUPIED.

Prior to 1844	14
Subsequent	47

4. Base lines measured.

1817 to 1819.....	2,	New Jersey and New York.
1832 to 1844.....	1,	New York.
1844 to 1849, preliminary,	3,	North Carolina, South Carolina, Texas.
" measured...	4,	Massachusetts, Maryland, North Carolina, and Alabama.

5. Magnetic stations.

Prior to 1844	10
Subsequent	88

6. Vertical angles. No. of stations.

Prior to 1844, stations occupied.....	7
Since 1844, " "	34

7. Topography.

1832 to 1844....	6,222	square miles,	6,100	miles of shore line.	
1844 to 1849....	2,755	"	4,055	"	"
Total.....	8,977	"	10,155	"	"

The sections in which the survey has been commenced in recent years, (North and South Carolina, Alabama, Mississippi, Louisiana, and Texas,) have only in part reached the stage for topographical surveys; and the proportion of the topography to the triangulation, and the proportion of interior topography have been purposely diminished. The extent of interior topography was diminishing in the years approaching 1844, and prior to it. On the southern coast the topographical features of the country necessarily limit the extent of topography, which can be useful in connexion with a chart.

Note.—The work of triangulation and topography done since November, 1848, is to be added to the foregoing, to give the progress to January, 1849.

8. Hydrography.

1834 to 1844, area in square miles 9,623, of which 5,000 off shore. Number of soundings.....	808,147
1844 to 1849, area in square miles 15,086, of which 11,000 off shore. Number of soundings.....	950,202
Total No. of soundings, at depths from one foot to 120 fathoms.....	1,758,349

In the gulf stream since 1844, 1,410 soundings for temperature have been made, 4,180 miles sailed over, and 139,747 fathoms of line cast in obtaining the temperatures.

Since 1844, 160 current stations have been occupied, at which full sets of observations have been made.

Since 1844, 40 permanent tidal stations have been occupied, besides the temporary stations used in soundings.

Prior to 1844, 13 permanent tidal stations had been occupied.

Specimens of bottom since 1842, 4,598.

9. Manuscript maps.

The work has produced the following number of manuscript maps:

Prior to 1844	326
Since 1844	295
Total	621

Of these 152 were by draughtsmen in the office, 260 are topographical maps by field parties, and 209 are hydrographic sheets or charts.

The total surface of paper covered by these sheets and maps is estimated at 11,215 square feet.

Prior to 1844, maps and charts reduced in office	29
Subsequent, " " "	123
Prior to 1844, original hydrographic sheets, (duplicates 34)	103
Subsequent, " " "	72
Prior to 1844, " topographical "	160
Subsequent, " " "	100

Area of topographical sheets, 4,056 square feet.

Area of hydrographic sheets, 5,891 square feet.

To these areas are to be added those of the maps of the past season.

10. Record Books.

1. Original hydrographic books, soundings, and angles :

Prior to 1844	179
Since 1844	380
Total	559

2. Original hydrographic books, tidal and current observations and reductions :

Prior to 1844	8
Since 1844	158
Total	166

Table showing the number of volumes of geodetic and astronomical observations and computations, &c., including astronomical and telegraphic observations and computations for differences of longitude.

Date.	No. of volumes of geodetic observations.	No. of volumes of geodetic observations.	No. of volumes of geodetic computations.	No. of volumes of astronomical observations, containing, in part, computations.	No. of volumes of astronomical observations, with original computations.	No. of volumes of magnetic observations and computations.		Meteorological observations.		Observations and computations for differences of longitude.	Aggregate.
	Original.	Duplicate.		Original.	Duplicate.	Original.	Duplicate.	Original.	Duplicate.		
Previous to 1832.....	4	1	1	1	2	.....	.....	.....	.....	.....	9
1832—1843	95	26	78	16	4	4	.....	2	.....	.....	225
In 1844.....	36	18	28	24	20	1	.....	2	1	.....	130
1845.....	37	23	29	22	16	4	2	1	.....	.....	134
1846.....	45	28	22	22	13	5	2	1	.....	.....	138
1847.....	53	27	27	33	41	12	2	1	.....	.....	199
Total 1844—1847.....	171	96	106	101	90	22	9	5	1	.....	601
In 1848, estimated.....	62	32	32	39	48	15	6	2	2	.....	238
Total 1844—1849.....	232	128	138	140	138	37	15	7	3	66	905
Total 1832—1849.....	332	155	217	157	144	41	15	9	3	.....	1,139

11. ENGRAVED PLATES.

Prior to 1844	5	
Subsequent, finished	18	equivalent to 24 finished.
unfinished	11	
electrotyped	8	
sketches	—	

These plates are valued at $44,800.

12. PUBLISHED MAPS.

	No. of maps.	No. of copies printed.	Distributed.	Placed with agents for sale.
Prior to 1844	....	.....	.....	.....
Subsequent	21	24,249	7,678	12,979

The cost of each sheet for printing and paper is from 15 to 50 cents, for which price they are sold; of these 2,923 sheets have been distributed within the past year; not including sketches, which by estimate are 1,800, to insurance companies, &c.

II.—PROPERTY ON HAND.

1. Instruments of different classes, (geodetic, astronomical, topographical, hydrographical, and miscellaneous,) used in the survey, purchased prior to 1832, estimated value now	$15,000 00
Purchased or made between 1832 and 1844, estimated value	16,872 00
Purchased or made between 1844 and 1849, value.	26,598 81
Total present value of instruments	58,470 81
2. Engraved copper plates and electrotypes, estimated as by the list given, value	44,800 00
3. Books. The value of the 655 volumes of the library is estimated at $2,500, the works are of a costly class	2,500 00
4. Tools and machines of instrument shop, valued at.	1,834 25
Tools and machines of engraving office, electrotypes	500 00
Printing presses, drying press, inking apparatus, materials for printing, estimated value	3,800 00
Printed maps on hand	1,270 00
5. Field equipments, estimated present value	3,750 50
6. Vessels purchased by coast survey, present value estimated	32,587 74
Total value of property on hand	149,513 30

IV.—1. *List of geodetic and astronomical observations.*

Astronomical.		Geodetic.		Volumes.	REMARKS.
Observations.	Computations.	Observations.	Computations.	No.	
					1817.
		1	.....	1	1 volume (and duplicate) Observations of Horizontal Angles at stations Weasel Mount, Cranetown, Springfield, South End of Base, and Bergen Neck; containing, also, astronomical observations.
1	.....	.....	.....	2	1 volume (and duplicate) Observations of Horizontal Angles at stations Fire Signal, Fort Lewis, and Gravesend; containing, also, astronomical observations.
			1	3	1 volume Results of Observations of Horizontal Angles.
	1	.....	.....	4	1 volume Results of Astronomical Observations.
		2	.....	6	2 volumes Note-books of Reconnaissance, 1816 and 1817.
		1	.....	7	1 volume Description of Signals.
					*Primary triangulation.**
					1833.
		3	.....	10	3 volumes (in triplicate) Observations of Horizontal Angles at stations Buttermilk, Roundhill, Baldhill, Tashua, Rulands, Westhills, and Mount Carmel.
			2	12	1 volume (and duplicate) Results of the above angles.
6	.....	.....	.....	18	6 volumes Astronomical Observations for Time and Latitude at Buttermilk, Roundhill, Baldhill, Tashua, Mount Carmel, Rulands. and Westhills.
			1	19	1 cahier of Preliminary Calculations of Triangles of 1817 and 1833.
		1	.....	20	1 volume Reconnaissance in 1832.
		1	.....	21	1 volume Description of Signals and Vertical angles.
					1834 and 1835.
		3	.....	24	3 volumes Measurement of Base Line on Fire Island Beach.
3	.....	.....	.....	27	3 volumes Astronomical Observations at Westhills and Fire Signal, Fire Island and West End of Base.

	1	.....	.....	28	1 volume Computation of Astronomical Observations of 1833 and 1834.
		1	.....	29	1 volume Description of Signals.
		1	.....	30	1 volume Reconnaissance in the vicinity of Washington.
			1	31	1 volume Computation of Latitude, Longitude, and Azimuths of 1817.
					1836.
		1	.....	32	1 volume Observations of Horizontal Angles at station Westhills.
2	.....	.....	.....	34	Astronomical Observations at Westhills, including Observations of Solar Eclipse, 2 vols.
1	.....	.....	.....	35	Chronometer Comparisons, 1 volume.
1†	.....	.....	.....	36	Meteorological Observations, 1 volume.
					1837.
		2	.....	38	Observations of Horizontal Angles at stations Rulands, East Base, West Base, and Harrowhill, 2 volumes and duplicates.
1†	.....	.....	.....	39	Meteorological Observations, 1 volume.
					1838.
		2	.....	41	Observations of Horizontal Angles at stations Weasel Mount, Springfield, Beaconhill, and Disboro', 2 volumes and duplicates.
2	.....	.....	.....	43	Astronomical Observations at Weasel Mountain for Time, Latitude, and Azimuth, 2 vols. and duplicates.
	1	.....	.....	44	Results of Astronomical Observations at Weasel Mountain.
					1839.
		1	.....	45	Observations of Horizontal Angles at stations Stonyhill, Mount Rose, Newton, and Willowgrove, 1 volume and duplicate.
					1840.
		1	.....	46	Observations of Horizontal Angles at stations Willowgrove and Mount Holly, 1 volume and duplicate.
			1	47	Computation of Triangle Sides, 1 volume.

* The primary triangulation from 1833 to 1843 extends from the vicinity of New Haven, Connecticut, to that of Wilmington, Delaware.
† Meteorological observations.

IV.—*List of observations*—Continued.

Astronomical.		Geodetic.		Volumes.	REMARKS.
Observations.	Computations.	Observations.	Computations.	No.	
					Primary triangulation—Continued.
					1841 and 1842.
		1	.....	48	Observations of Horizontal Angles at stations Yard and Pinehill, 1 volume and duplicate.
			2	50	Results of Observations of Horizontal Angles to the close of 1842, 1 volume and duplicate.
					1843.
		1	.....	51	Observations of Horizontal Angles at stations Lippincott and Burden, 1 vol. and duplicate.
			1	52	Results of Observations of Horizontal Angles, 1 volume.
			2	54	Computation of Primary Triangles, 1 volume (in triplicate.)
			1	55	Computation of Subsidiary Triangles, 1 volume.
			2	57	Computation of Latitude, Longitude, and Azimuth of stations to the close of 1843, 2 vols.
					Secondary triangulation.
					1833.
		2	.....	59	Observations of Horizontal Angles from New Haven to Black Rock and Bridgeport, 2 vols.
			1	60	Results of the above, 1 volume.
					1834.
		2	.....	62	Observations of Horizontal Angles from Black Rock to Fort Washington, on the Hudson river, 2 volumes.
			1	63	Results of the above, 1 volume.
		1	.....	64	Description of Stations, 1 volume.
			1	65	Computation of Triangles from the bay of New Haven to Hudson river, 1 volume.

	6	.....	71	Observations of Horizontal Angles on the north shore of Long Island, from Throg's Neck to Old Field light-house; and on the south shore, from Fire Island light to east end of Moriche's bay, 6 volumes.
		1	72	Preliminary Computation of the above, 1 volume.
		1	73	Re-computation do do 1 volume.
		2	75	Latitude, Longitude, and Azimuth Computations of points on Long Island, 1 volume; also of points from New Haven to Hudson river, 1 volume.
	1	.....	76	Journal of Reconnaissance, 1 volume.
				1835.
	3	.....	79	Observations of Horizontal Angles from Weazel Mountain and Fort Washington, to Amboy, Point Comfort, and Raritan bay, 3 volumes.
		1	80	Computations of the preceding, 1 volume.
	2	.....	82	Observations of Horizontal Angles on the south shore of Long Island, from Fire Island light to New York bay, 2 volumes.
		1	83	Computation of the preceding, 1 volume.
	2	.....	85	Observation of Horizontal Angles in Fisher's Island sound, 2 volumes.
		1	86	Results of the preceding, 1 volume.
		2	88	Computation of Latitudes, Longitudes, and Azimuths, 2 volumes.
	1	.....	89	Description of Stations, 1 volume.
				1836.
	3	.....	92	Observations of Horizontal Angles on Staten island and Newark bay; and from Beaconhill and Neversink to Disboro' and Christopher, 3 volumes.
		2	94	Results of the preceding, 2 volumes.
		1	95	Computation of Triangles, 1 volume.
	1	.....	96	Description of Stations, 1 volume.
	2	.....	98	Observations of Horizontal Angles on the north shore of Long Island, from Oldfield light-house to Browne's Point, including some points on the north shore of Long Island sound, 2 volumes.
		1	99	Computations of the preceding, 1 volume.
		1	100	Re-computation, 1 volume.
		1	101	Computations of Latitude, Longitude, and Azimuth, 1 volume.
				1837.
	3	.....	104	Observations of Horizontal Angles from Boundbrook and Beaconhill to Newtown and Mount Holly, in New Jersey and Pennsylvania, 3 volumes.
		2	106	Results of the preceding, 2 volumes.

IV.—*List of observations*—Continued.

Astronomical.		Geodetic.		Volumes.	REMARKS.
Observations.	Computations.	Observations.	Computations.	No.	
					Secondary triangulation—Continued.
					1837.
		2	.....	108	Observations of Horizontal Angles on south shore of Long Island, from Moriche's bay to Montauk Point, Gardner's Peconic, and Orient bays, 2 volumes.
			1	109	Results of the preceding observations, 1 volume.
			2	111	Computation of Triangles and Latitudes, Longitudes, and Azimuths, 2 volumes.
		1	.....	112	Description of Signals, 1 volume.
		1	.....	113	Journal of Reconnaissance from Osborne to Montauk Point, Long Island, 1 volume.
			1	114	Triangle Computations, and Latitudes, Longitudes, and Azimuths of points in New York harbor and on Hudson river, 1 volume.
		1	.....	115	Observations of Horizontal Angles in the vicinity of New York, 1 volume.
		1	.....	116	Description of Stations in the vicinity of New York, 1 volume.
					1838.
		2	.....	118	Observations of Horizontal Angles from Willowgrove and Mount Holly to Meeting-house hill and Burden, in New Jersey, Pennsylvania, and Delaware, 2 volumes.
			1	119	Results of the preceding, 1 volume.
			1	120	Computation of Triangles, 1 volume.
		1	.....	121	Observations of Horizontal Angles, from New Haven eastward, 1 volume.
			1	122	Results of the preceding, 1 volume.
			1	123	Computation of Latitudes, Longitudes, and Azimuths, 1 volume.
		1	.....	124	Description of Signals, 1 volume.
					1839.
		1	.....	125	Observations of Horizontal Angles from the vicinity of Wilmington, across to the head of Chesapeake bay, 1 volume.
			1	126	Results of the preceding, 1 volume.

2	.....	128	Observations of Horizontal Angles from the vicinity of New London, eastward to Point Judith, 2 volumes.
	1	129	Results of the preceding, 1 volume.
1	.....	130	Observations of Horizontal Angles from Sandy Hook to Little Egg Harbor, New Jersey, 1 volume.
	1	131	Computation of Triangles, and Latitudes, Longitudes, and Azimuths, 1 volume.
1	.....	132	Description of Signals, 1 volume.
1	.....	133	Observations of Horizontal Angles from Mount Carmel, West Rock, (vicinity of New Haven,) to Buttermilk Hill, near the Hudson river, 1 volume.
1	1	134	Computation of Triangles and Latitudes, Longitudes and Azimuths, 1 volume.
		135	Description of Signals, 1 volume.

1840.

1	.....	136	Observations of Horizontal Angles, head of Chesapeake bay, 1 volume.
	1	137	Results of the preceding, 1 volume.
1	.....	138	Observations of Horizontal Angles, head of Chesapeake bay, 1 volume.
	1	139	Results of the preceding, 1 volume.
1	.....	140	Observations of Horizontal Angles from Little Egg Harbor to Cape May, on the coast of New Jersey, 1 volume.
	2	142	Computation of Triangles and Latitudes, Longitudes and Azimuths, of the preceding, 2 volumes.
1	.....	143	Observations of Horizontal Angles on Delaware river, from Philadelphia northward, 1 volume.
1	.....	144	Observations of Horizontal Angles from Champlin Hill to Lantern Hill, and Watch Hill, Conn. and R. I., 1 volume.
	1	145	Computation of Triangles and Latitudes, Longitudes and Azimuths, of the preceding, 1 volume.
2	.....	147	Observations of Horizontal Angles in New Jersey, between Princeton and Trenton, 2 volumes.
	1	148	Computation of Triangles and Latitudes, Longitudes and Azimuths, of the preceding, 1 volume.
1	.....	149	Description of Stations, 1 volume.
	1	150	Recomputation of Latitude, Longitude, and Azimuth, of points in New York Harbor, for map, 1 volume.

1841.

1	.....	151	Observations of Horizontal Angles, upper part of Chesapeake bay, 1 volume.
	1	152	Results of the preceding, 1 volume.

IV.—*List of observations*—Continued.

Astronomical.		Geodetic.		Volumes.	REMARKS.
Observations.	Computations.	Observations.	Computations.	No.	
					Secondary triangulation—Continued.
					1841.—Continued.
		1	1	153	Computation of Latitudes, Longitudes, and Azimuths, from Beacon Hill, New Jersey, to Wilmington, Delaware, 1 volume.
		1	.....	154	Observations of Horizontal Angles in Delaware bay, 1 volume.
			1	155	Results of the preceding, 1 volume.
		1	.....	156	Description of Signals, 1 volume.
		1	.....	157	Observations of Horizontal Angles on Delaware river, from Wilmington to Bombay Hook, 1 volume.
			1	158	Computations of Triangles, and Latitudes, Longitudes, and Azimuths, of the preceding, 1 volume.
		1	.....	159	Observations of Horizontal Angles on Delaware river, in the vicinity of Bristol, 1 volume.
			2	161	Computation of Triangles, and Latitude, Longitude, and Azimuth, of the preceding, 2 volumes.
1	.....	.....	.....	162	Astronomical Observations at Cape May, Cape Henlopen, and Town Bank, 1 volume.
					1842.
		1	.....	163	Observations of Horizontal Angles in Chesapeake bay, on Kent island and Patapsco river, 1 volume.
			1	164	Results of the preceding, 1 volume.
		1	.....	165	Description of Stations, 1 volume.
			2	167	Computations of Triangles, and Latitude, Longitude, and Azimuth, from Wilmington, Delaware, to head of Chesapeake bay, 2 volumes.
		3	.....	170	Observations of Horizontal Angles, near the capes of Delaware bay, 3 volumes.
			1	171	Results of the preceding, 1 volume.
		1	.....	172	Description of Signals on Delaware bay, 1 volume.
			2	174	Duplicate Computations of Triangles in Delaware bay, 2 volumes.

		1	.....	175	Observations of Horizontal Angles on Delaware River, from Bristol to Trenton, 1 volume.
			1	176	Results of Horizontal Angles (Observations) on Delaware river, from Philadelphia to Trenton, in 1840, 1843, 1 volume.
			4	180	Duplicate Computations of Triangles and of Latitudes, Longitudes, and Azimuths, of the preceding, 4 volumes.
					1843.
		1	.....	181	Observations of Horizontal Angles at Station Bethel, 1 volume.
			1	182	Results of the preceding, 1 volume.
			2	184	Duplicate Computation of Triangles from Wilmington to the head of Chesapeake Bay, and down the latter to Kent island, 2 volumes.
			2	186	Duplicate Computation of Latitudes, Longitudes, and Azimuths, of the preceding triangulation, 2 volumes.
		1	.....	187	Reconnaissance in Albemarle Sound, 1 volume.
		6	.....	193	Observations of Horizontal Angles from the line, Point Judith, Cuttyhunk, to Providence, Rhode Island, 6 volumes, and duplicates.
			3	196	Results of the preceding, 1 volume. Computation of Triangles, and of Latitude, Longitude, and Azimuth, of preceding, 2 volumes.
			2	198	Computation of Triangles, and of Latitudes, Longitudes, and Azimuths, of points east and West of Fire Island base, for map, 2 volumes.
		1	.....	199	Observations of Horizontal Angles on Delaware river, from Philadelphia to Wilmington, 1 volume, and duplicate.
			2	201	Computations of Triangles and Latitudes, Longitudes and Azimuths of the preceding, 1 volume, and duplicate.
15	3	99	82	201	

NOTE.—Meteorological observations 2.

IV.—*List of observations*—Continued.

No.	Geodetic.		Astronomical and magnetic.		REMARKS.
	Observations.	Computations.	Observations.	Computations.	
					1844.
Volume.	Volume.	Volume.	Volume.	Volume.	SECTION I.—*Primary triangulation.*
1—21	21	.....	.....	.....	Observations of Horizontal Angles at stations McSparran, Spencer, Pocasset, Copecut, and Beaconpole ; duplicate, 8 volumes.
23	.....	2	.....	.....	Results of the preceding observations ; duplicate, 1 volume.
24	1	.....	.....	.....	Vertical Angles at Beaconpole.
28	.....	.....	4	.....	Observations for Azimuth at stations Spencer, Copecut, and Beaconpole, with first computations.
31	.....	.....	.....	3	Duplicate computations of the preceding.
34	.....	.....	3	.....	Observations for Time, and Comparisons for Chronometers, at stations McSparran, Spencer, and Copecut
43	.....	.....	9	.....	Observations for Latitude, at stations Spencer, Copecut, and Beaconpole, with first computation ; duplicate, 3 volumes.
49	.....	.....	.....	6	Second Computations of the preceding.
52	2	.....	1	.....	Miscellanea.
*53	.....	.....	.....	.....	Meteorological Observations at McSparran, Spencer, Copecut, and Beaconpole ; duplicate, 1 volume.
*54	.....	.....	.....	.....	Meteorological Observations at light vessel, Sandy Hook.
56	2	.....	.....	.....	Measurement of the Massachusetts Base ; duplicate, 1 volume.
					Secondary triangulation.
57	1	.....	.....	.....	Observations of Horizontal Angles in Buzzard's bay and Vineyard sound ; duplicate, 2 vols.
59	.....	2	.....	.....	Results of the preceding ; duplicate, 1 volume.
60	1	.....	.....	.....	Description of Signals in Buzzard's bay and Vineyard sound.
64	.....	4	.....	.....	Computation of Triangles ; duplicate, 2 volumes.
68	.....	4	.....	.....	Computation of Latitude, Longitude, and Azimuth ; duplicate, 1 volume.

					SECTION II.—*Primary triangulation.*
70	.....	.....	1	1	Observations for Latitude at Brooklyn, and computation.
77	.....	.....	4	3	Observations and Computations of Time, Azimuths, and Latitude at Champlin's Hill.
81	.....	.....	.....	4	Second Computations of Astronomical Observations at Brooklyn and Champlin's Hill.
82	.....	.....	1	.....	Magnetical Observations.
					SECTION III.—*Primary triangulation.*
83	1	.....	.....	.....	Measurement of the Kent Island base ; duplicate, 1 volume.
85	2	.....	.....	.....	Observations of Horizontal Angles, Chesapeake bay ; duplicate, 2 volumes.
87	.....	2	.....	.....	Results of the preceding ; duplicate, 1 volume.
93	.....	.....	2	4	Observations and Computations of Time, Latitude, and Azimuth at north end of base and Finley's.
94	1	.....	.....	.....	Description of Stations ; duplicate, 1 volume.
					Secondary triangulation.
95	1	.....	.....	.....	Observations of Horizontal Angles at the head of Chesapeake bay ; duplicate, 1 volume.
99	.....	4	.....	.....	Computations of Triangles and Latitude, Longitude, and Azimuth of points at the head of Chesapeake bay.
100	1	.....	.....	.....	Observations of Horizontal Angles in the upper part of Chesapeake bay, and south of Cape Henlopen ; duplicate, 1 volume.
103	.....	3	.....	.....	Computation of Triangles and Latitude, Longitude, and Azimuth of Points in the upper part of Chesapeake bay ; duplicate, 1 volume.
104	1	.....	.....	.....	Observations of Horizontal Angles on Severn and Magothy rivers.
106	.....	2	.....	.....	Computations of Triangles and Latitude, Longitude, and Azimuths.
107	1	.....	.....	.....	Notes of Reconnaissance in the vicinity of Annapolis.
112	.....	5	.....	.....	Computation of Triangles and Latitude, Longitude, and Azimuth of Points south of Cape Henlopen ; duplicate, 1 volume.
*2	36	28	25	21	

1845.

					SECTION I.—*Primary triangulation.*
130	18	.....	.....	.....	Observations of Horizontal Angles at Stations, Great Meadow, Quaker Hill, Cuttyhunk, Indian Hill, Shootflying, Manomet, and Blue Hill ; duplicate, 11 volumes.
132	.....	2	.....	.....	Results of the preceding ; duplicate, 1 volume.
135	.....	3	.....	.....	Computations of Triangles, and Latitude, Longitude, and Azimuths.

* Meteorological observations.

No.	Geodetic.		Astronomical and magnetic.		REMARKS.
	Observations.	Computations.	Observations.	Computations.	
					1845.
Volume.	Volume.	Volume.	Volume.	Volume.	SECTION I.—*Primary triangulation*—Continued.
136	1	.....	.....	.....	Vertical Angles at Great Meadow, Quaker Hill, Cuttyhunk, Indian, Shootflying, Manomet, Blue, and Copecut; duplicate, 1 volume.
139	.....	.....	3	.....	Observations for Azimuth at Stations, Indian Hill, Shootflying, and Blue Hill; with 1st computations.
141	.....	.....	.....	3	Second Computations of the preceding.
144	2	.....	1	.....	Miscellanea.
145	.....	.....	1	.....	Transits for Time.
154	.....	.....	9	.....	Observations for Latitude at Indian, Shootflying, and Blue Hill; containing 1st computations.
159	.....	.....	.....	5	Second Computations of the preceding, and Comparisons.
161	.....	.....	1	1	Observations and Computations of Latitude at Nantucket.
163	.....	.....	2	.....	Observations and Notes on Eclipse of Sun at Great Meadow Station.
167	.....	.....	2	2	Magnetical Observations in 1844 and 1845, and reduction of same.
*168	.....	.....	.....	.....	Meteorological Observations at light vessel, Sandy Hook.
					SECTION I.—*Secondary triangulation.*
169	1	.....	.....	.....	Observations of Horizontal Angles in Nantucket Sound; duplicate, 2 volumes.
170	.....	1	.....	.....	Results of the preceding.
171	1	.....	.....	.....	Description of Signals.
177	.....	6	.....	.....	Computation of Triangles, and Latitude, Longitude, and Azimuth of Points about Nantucket Sound; duplicate, 2 volumes.

					SECTION II.—*Primary triangulation.*
180	3	.....	.....	.....	Observations of Horizontal Angles at Champlins, at stations on Delaware Bay, and at the ends of the base in Massachusetts; duplicate, 3 volumes.
183	.....	.....	3	.....	Observations of Time, Latitude, and Azimuth at Deakyne.
188	.....	.....	.....	5	Delaware Bay. Computations of Astronomical Observations at Deakyne.
192	.....	4	.....	.....	Computations of Triangles, and Latitude, Longitude, and Azimuth.
193	1	.....	.....	.....	Reconnaissance to connect the primary triangulation on Delaware river and bay with the Atlantic coast of New Jersey.
					SECTION III.—*Primary triangulation.*
196	3	.....	.....	.....	Observations of Horizontal Angles in Chesapeake Bay, connecting Kent Island Base with the triangulation of 1843; duplicate, 3 volumes.
198	.....	2	.....	.....	Results of the preceding; duplicate, 1 volume.
202	.....	4	.....	.....	Computations of Triangles, and Latitude, Longitude, and Azimuth.
208	.....	.....	4	2	Observations and Computations of Time and Latitude at Stations, Taylor and Osborne's Ruin.
209	.....	.....	.....	1	Second Computations of Time and Latitude at Taylor and Osborne's Ruin.
					SECTION III.—*Secondary triangulation.*
213	4	.....	.....	.....	Observations of Horizontal Angles on Chesapeake bay and river; duplicate, 3 volumes.
220	.....	7	.....	.....	Computations of Triangles, and Latitude, Longitude, and Azimuths of the preceding triangulation.
221	1	.....	.....	.....	Description of Stations.
					SECTION VIII.—*Primary triangulation.*
223	2	.....	.....	.....	Journal of Reconnaissance, and Sketches and Views accompanying the same.
	37	29	26	18	

* Meteorological observations.

IV.—*List of observations*—Continued.

No.	Geodetic.		Astronomical and magnetic.		REMARKS.
	Observations.	Computations.	Observations.	Computations.	
					1846.
Volume.	Volume.	Volume.	Volume.	Volume.	SECTION I.—*Primary triangulation.*
229	6	.....	.....	.....	Observations of Horizontal Angles at Stations Holt's and Thompson's; duplicate, 5 volumes.
231	.....	2	.....	.....	Results of the preceding. 2 volumes.
233	.....	.....	1	1	Observations for Azimuth at Thompson's, with First and Second Computation; duplicate, 1 volume.
240	.....	.....	7	.....	Observations for Time and Latitude at Thompson's, with First Computations.
246	.....	.....	.....	6	Second Computations of the preceding.
248	.....	.....	1	1	Astronomical Observations at Nantucket, with Computation.
249	.....	.....	.....	.....	Meteorological Journal.
					SECTION I.—*Secondary triangulation.*
250	1	.....	.....	.....	Observations of Horizontal Angles about Cape Cod; duplicate, 1 volume.
252	.....	2	.....	.....	Results of the preceding.
257	.....	5	.....	.....	Computations of Triangles, and Latitude, Longitude, and Azimuth of the preceding Triangulation; duplicate, 2 volumes.
258	1	.....	.....	.....	Description of Stations; duplicate, 1 volume.
264	6	.....	.....	.....	Observations of Horizontal Angles in Boston Harbor; duplicate, 4 volumes.
					SECTION II.—*Verification.*
267	3	.....	.....	.....	Verifications and Vertical Angles; duplicate, 3 volumes.
270	.....	.....	3	.....	Magnetic Observations, with Computations of the same.

					SECTION III.—*Primary triangulation.*
277	7	.....	.....	.....	Observations of Horizontal Angles at Stations Hills, Theological Seminary, and Causten's; duplicate, 4 volumes.
278	.....	1	.....	.....	Results of the preceding.
279	1	.....	.....	.....	Description of Signals.
280	1	.....	.....	.....	Reconnaissance in the Vicinity of Washington.
281	.....	.....	1	.....	Observations of Solar Eclipse. Marriott's.
287	.....	.....	4	2	Observations of Time and Latitude at Marriott's, and Computations.
289	2	.....	.....	.....	Miscellanea.
292	.....	.....	2	1	Magnetic Observations and Computations; duplicate, 1 volume.
293	.....	.....	1	.....	Astronomical Observations at Philadelphia.
296	3	.....	.....	.....	Observations of Horizontal Angles in Chesapeake Bay; duplicate, 3 volumes.
297	.....	1	.....	.....	Results of the preceding.
					SECTION III.—*Secondary triangulation.*
300	3	.....	.....	.....	Observations of Horizontal Angles in Chesapeake Bay and Rivers; duplicate, 3 volumes.
307	.....	7	.....	.....	Computation of Triangles, and Latitude, Longitude, and Azimuth.
308	1	.....	.....	.....	Description of Stations.
					SECTION IV.—*Primary triangulation.*
311	3	.....	.....	.....	Observations of Horizontal Angles, Albemarle Sound; duplicate, 3 volumes.
312	.....	1	.....	.....	Computations of Triangles.
313	1	.....	.....	.....	Description of Stations; duplicate, 1 volume.
320	.....	.....	7	.....	Observations for Time, Latitude, and Azimuth, at Bodies island, with First Computations.
323	.....	.....	.....	3	Second Computations of the preceding.
324	.....	.....	.....	1	Computations of Magnetic Observations.
					SECTION VIII.—*Primary and secondary triangulation.*
329	5	.....	.....	.....	Observations of Horizontal Angles in Mississippi Sound.
331	.....	2	.....	.....	Results of the preceding.
332	1	.....	.....	.....	Description of Stations.
333	.....	1	.....	.....	Preliminary Computations of Triangles.
	45	22	27	15	

IV.—*List of observations*—Continued.

No.	Geodetic.		Astronomical and magnetic.		REMARKS.
	Observations.	Computations.	Observations.	Computations.	
Volume.	Volume.	Volume.	Volume.	Volume.	1847.
					SECTION I.—*Primary triangulation.*
338	5	.....	.....	.....	Observations of Horizontal Angles at Thompson's and Agamenticus; duplicate, 4 vols.
339	.....	1	.....	.....	Results of the preceding.
341	.....	.....	2	.....	Observations for Azimuths at Agamenticus, with first computation.
342	.....	.....	.....	1	Second computation of the preceding.
346	.....	.....	4	.....	Transits for Time and Comparisons of Chronometers.
348	2	.....	.....	.....	Miscellanea, 2 volumes.
350	2	.....	.....	.....	Vertical Angles, in sections I. and III.; duplicate, 2 volumes.
351	1	.....	.....	.....	Abstract of Angles at Agamenticus.
353	.....	.....	2	.....	Observations for Latitude, Isle of Shoals and Agamenticus, with the zenith telescope; duplicate, 1 volume.
355	.....	.....	.....	2	Reduction of Stars for Zenith Telescope Observations.
357	.....	.....	.....	2	Computation of Latitude, Isle of Shoals and Agamenticus.
361	.....	.....	.....	4	Second Computation of Latitude at Isle of Shoals and Agamenticus.
365	.....	.....	3	1	Magnetic Observations and Computations; duplicate, 1 volume.
370	.....	.....	4	1	Observations for Latitude at Agamenticus, with the zenith sector and prime vertical transit, with computations; 2 volumes, duplicate.
					SECTION I.—*Secondary triangulation.*
373	3	.....	.....	.....	Observations of Horizontal Angles, Cape Cod; duplicate, 3 volumes.
378	.....	5	.....	.....	Computation of Triangles and Latitudes, Longitudes, and Azimuths of the preceding.
386	8	.....	.....	.....	Observations of Horizontal Angles, Boston harbor; duplicate, 6 volumes.
387	1	.....	.....	.....	Observations of Vertical Angles, Boston harbor; duplicate, 1 volume.

					SECTION I.—*Verification.*
388	1	.....	.....	.....	Note Book of Verification; duplicate, 1 volume.
					SECTION II.—*Magnetic observations.*
391	.....	.....	3	.....	Magnetic Observations at Point Judith Light-house, Fort Wooster, Sand's Point Light-house, Legget's, and Agamenticus; duplicate, 1 volume.
					SECTION III.—*Primary triangulation.*
393	2	.....	.....	.....	Observations of Horizontal Angles, Chesapeake bay; duplicate, 2 volumes.
394	.....	1	.....	.....	Results of Angles.
399	.....	5	.....	.....	Computation of Triangles and Latitudes, Longitudes, and Azimuths.
400	1	.....	.....	.....	Description of Signals.
405	.....	.....	5	.....	Observation for Latitude at Pool's Island and Taylor's.
416	.....	.....	.....	11	Computations, First and Second, of Latitude at Pool's Island and Taylor's.
420	4	.....	.....	.....	Observations of Horizontal Angles on the Atlantic Coast of Maryland; duplicate, 2 vols.
421	.....	1	.....	.....	Computation of Triangles and Latitudes, Longitudes, and Azimuths of preceding.
422	1	.....	.....	.....	Description of Stations.
					SECTION IV.—*Primary and secondary triangulation.*
429	7	.....	.....	.....	Observations of Horizontal Angles in Albemarle Sound and rivers in North Carolina; 3 volumes, duplicate.
432	.....	3	.....	.....	Latitude, Longitude, and Azimuth Computations Albemarle Sound and Pasquotank river.
433	.....	1	.....	.....	Triangle Side Computations, Albemarle Sound.
435	.....	.....	2	.....	Observations Azimuth at Stevenson's Point and Shell Bank; duplicate, 1 volume.
439	.....	.....	2	2	Observations for Latitude with the zenith telescope at Stevenson's Point and Shell Bank, with computations.

IV.—*List of observations*—Continued.

No.	Geodetic.		Astronomical and magnetic.		REMARKS.
	Observations.	Computations.	Observations.	Computations.	
Volume.	Volume.	Volume.	Volume.	Volume.	1847.
443					
446	.....	.....	.....	4	Second Computations of the above Observations.
	.....	.....	3	.....	Magnetic Observations and Experiments in Magnetic Vibration, at Shell Bank; duplicate, 1 volume.
448	.....	.....	.....	2	Second Computation of Zenith Telescope Observations for Latitude at Stevenson's Point and Shell Bank.
					SECTION IV.—*Tertiary triangulation.*
449	1	.....	.....	.....	Journal of Triangulation of Rivers in North Carolina; duplicate, 1 volume.
450	.....	1	.....	.....	Triangle Side and Latitude, Longitude, and Azimuth Computations for Perquimons and Little rivers, North Carolina.
					SECTION VIII.—*Primary and secondary triangulation.*
456	6	.....	.....	.....	Measurement of Base on Dauphin Island, and Experiments on Base Apparatus.
462	6	.....	.....	.....	Observations of Horizontal Angles in Mississippi Sound; duplicate, 3 volumes.
365	.....	3	.....	.....	Results of the preceding.
468	.....	3	.....	.....	Computations of Triangles and Latitude, Longitude, and Azimuths.
471	3	.....	.....	.....	Observations Horizontal Angles at Pascagoula and Fort Morgan for Azimuths; duplicate, 3 volumes.

482	.....	.....	11	.....	Observations for Time, Latitude, and Azimuths, at Fort Morgan and Pascagoula.
495	.....	.....	.....	13	Computations of the preceding.
498	.....	.....	3	.....	Magnetic Observations at Pascagoula and Fort Morgan; duplicate, 2 volumes.
499	.....	.....	.....	.....	Meteorological Observations at Fort Morgan.
					SECTION IX.—*Primary triangulation.*
500	.....	1	.....	.....	Journal of Reconnaissance of the Coast of Texas.
501	.....	1	.....	.....	Journal of Reconnaissance of Galveston Bay, Texas.
502	.....	.....	.....	1	Computation of Occultations, Galveston, Texas.
	53	27	44	44	

IV.—Continued.

2. *List of topographical maps.*

No.		State.	Scale.	Year.	Statute miles.		Area.
					Length.	Width.	
1	From Babylon to Patchogue, south side of Long Island..	New York	1/10,000	1844	16	1½	24
2	From Patchogue to Smith Point, south side of Long Island	.....do.....	1/10,000	1835	8	4	32
3	From Babylon to Rockaway Pavilion, south side of Long Island.....	.....do.....	1/20,000	1835	22	4	88
4	Jamaica Bay, south side of Long Island.....	.....do.....	1/20,000	1835	10	5	50
5	Coney Island to Fort Hamilton, south side of Long Island	.....do.....	1/10,000	1835	4	1½	6
6	Tompkinsville to Staten Island	.....do.....	1/5,000	1835	3	1¼	3¼
7	Sandy Hook Beach, Navesink Heights, to South Amboy..	New Jersey	1/20,000	1836	19	1½	28
8	From South Amboy to Elizabethtown, west of Staten Island.....	.....do.....	1/10,000	1836	10	2	20
9	Staten Island	.....do.....	1/10,000	1835–'6	12	4	48
10	From Elizabethtown to Newark	.....do.....	1/10,000	1836	5	2½	12
11	Raritan Valley, from Perth Amboy to New Brunswick, (contains the soundings).....	.....do.....	1/10,000	1836	8	1¼	10

12	Fort Hamilton to Brooklyn, New York Bay	do	1/10,000	1837	5	2½	12
13	Brooklyn to Hewlet's Cove, East river	do	1/10,000	1837	6	2½	15
14	Hewlet's Cove to Great Bay, shore of Long Island Sound	do	1/10,000	1837	8	3	24
15	Harlem river to Throg's Neck, shore of Long Island sound	do	1/10,000	1837	6	2	12
16	East shore of Manhattan Island, and from Harlem river to West Farms	do	1/10,000	1837	24	1¼	30
17	From Fort Lee to Jersey City, Hudson river	do	1/10,000	1837	10	3	30
18	Jersey City to Constable's Point, between New York and Newark Bay		1/10,000	1837	7	2	14
19	Black Rock to Norroton, shore of Long Island	Connecticut	1/10,000	1835	12	1⅝	20
20	Norroton to Delaney Point, shore of Long Island	do	1/10,000	1836	15	1½	22
21	Delaney's Point to Rodman's Point, shore of Long Island	New York	1/10,000	1837	10	1½	15
22	Black Rock to New Haven, shore of Long Island Sound	Connecticut	1/10,000	1837	20	2½	50
23	Lloyd's Neck and Lloyd's Harbor, Long Island Sound	New York	1/10,000	1836	3	3	9
24	Huntington Harbor, Long Island Sound	do	1/10,000	1837	4	3	12
25	Oyster Bay and Hog Island, Long Island Sound	do	1/10,000	1837	5	3	15
26	From Hog Island to Mattinicock Point, shore of Long Island Sound	do	1/10,000	1837	4	2½	10

IV.—*List of topographical maps*—Continued.

No.		State.	Scale.	Year.	Statute miles.		Area.
					Length.	Width.	
27	Mattinicock and Sand's Light-house to Hampstead harbor, Long Island Sound	New York	1/10,000	1837	6	1	7
28	Eaton's Neck, Northport, and Cow Harbor, shore of Long Island Sound	do	1/10,000	1837	5	3½	17
29	From Eaton's Neck to Smithtown	do	1/10,000	1837	5½	1+	6
30	Nassaquogue River	do	1/10,000	1837	4	2½	10
31	Stoneybrook to Oldfield, Long Island Sound	do	1/10,000	1837	6	2	12
32	Setauket and Drowned Meadow, Long Island Sound	do	1/10,000	1837	3	2	6
33	Great Neck, Long Island Sound	do	1/10,000	1837	4	2	8
34	Cow Neck, Long Island Sound	do	1/10,000	1837	5	3	15
35	From Bridgeport to New Haven	Connecticut		1837–8	20	4¼	85
36	From Brooklyn to Jamaica, Long Island	New York	1/20,000	1837	16	5	80
37	From Jamaica to Hicksville south, Long Island	do	1/20,000	1837	15	6	90
38	From Jamaica to Hicksville north, Long Island	do	1/20,000	1837	16	3¼	55

39	From Glen Cove to Oyster Bay, Long Island	do	1/10,000	1837	3	2¼	7
40	From Northport to Redhook, Long Island	do	1/10,000	1837	5	4	20
41	From Redhook to Smithtown, Long Island	do	1/10,000	1837	4½	4	18
42	From Smithtown to Stoneybrook, Long Island	do	1/10,000	1837	5	2	10
43	From Stoneybrook to Drowned Meadow, Long Island	do	1/20,000	1837	6	4	24
44	Neighborhood of Westhills	do	1/10,000	1836	5	4	20
45	From Westhills to Ruland, Long Island	do	1/20,000	1837	26	9	235
46	From Rodman's Point to Throg's Neck, L. I. Sound	Connecticut	1/10,000	1837	6	1	6
47	From Kingsbridge to Rye	do	1/10,000	1837	12	4½	50
48	From Rye to Horse Neck	do	1/10,000	1838	5½	4½	25
49	From Horse Neck to Darien	do	1/10,000	1838	9	4	36
50	From Darien to Saugatuck	do	1/10,000	1838	6⅓	4	26
51	From Saugatuck to Bridgeport	do	1/10,000	1838	10	3½	3
52	From Drowned Meadow Harbor to Friar's Head, Long Island Sound	New York	1/10,000	1838	18	2	36
53	From Friar's Head to Old Landing, Long Island Sound	do	1/10,000	1838	5	3	15
54	From Old Landing to Cooper's Hill, Long Island Sound	do	1/10,000	1838	5	3	15
55	From Cooper's Hill to Oyster Pond Point	do	1/10,000	1838	22	2½	55

IV.—*List of topographical maps*—Continued.

No.		State.	Scale.	Year.	Statute miles.		Area.
					Length.	Width.	
56	Plum Island to Gull Island, Long Island Sound.....	New York.....	$\frac{1}{10,000}$	1838	3	1	3
57	Fisher's Island, Fisher's Island Sound	.....do.....	$\frac{1}{10,000}$	1838	6	1	6
58	From Smith Point to Goodground, south shore of Long Island	.....do.....	$\frac{1}{10,000}$	1838	13	2	26
59	From Goodground to East Hampton, south shore of Long Island	.....do.....	$\frac{1}{10,000}$	1838	19	$2\frac{1}{4}$	42
60	From East Hampton to Neapeague.....	.....do.....	$\frac{1}{10,000}$	1838	9	$1\frac{1}{4}$	12
60*a*	Resurvey of the above.....	.....do.....	$\frac{1}{10,000}$	1845	$6\frac{1}{2}$	$1\frac{1}{2}$	$9\frac{3}{4}$
61	From Neapeague to Montauk Point, south side of Long Island	.....do.....	$\frac{1}{10,000}$	1838	11	2	22
$61\frac{1}{2}$	The same corrected in 1845.....	.....do.....	$\frac{1}{10,000}$	1845	.....	.....	.....
62	From Black Point to Fort Hill	Connecticut	$\frac{1}{10,000}$	1838	8	$2\frac{1}{2}$	20
63	From Fort Hill to Mystick Bridge.....	.....do.....	$\frac{1}{10,000}$	1838	3	3	9
64	From Glen Cove to Cold Spring, Long Island.	New York.....	$\frac{1}{20,000}$	1838	9	4	36

65	From River Head to Little Hog Neck, Peconic Bay, Long Island	do	1/10,000	1838	13	1 3/4	22
66	From Great Hog Neck, north, Peconic Bay, Long Island	do	1/10,000	1838	4	1 1/4	6
67	Shelter Island, Peconic Bay, Long Island	do	1/10,000	1838	5	4	20
68	Goodground to Noyac	do	1/10,000	1838	14	2	28
69	From Noyac to Sag Harbor, Peconic Bay, Long Island	do	1/10,000	1838	7	4	28
70	Sag Harbor to Acabonack	do	1/10,000	1838	8	3 1/2	28
	Resurveyed in part, (Three Will Harbor) Bay	do	1/10,000	1846			
71	Southampton, Long Island	do	1/10,000	1838	6	2	12
72	Bridge Hampton Acabonack, (I. of L. I.)	do	1/10,000	1838	9	1 1/2	13
	Resurveyed in part, (East Hampton and Amagansett Bay)	do	1/10,000	1846			
73	Gardiner's Island, in Gardiner's Bay, Long Island	do	1/10,000	1838	7	1	7
74	New Haven to Fair Haven	Connecticut	1/10,000	1838	4	3	12
75	From Ruland to River Head, Long Island	New York	1/10,000	1838	25	9	225
76	From Niantic River to Rye	Connecticut	1/20,000	1838	8	3	24
7	Lime to Westbrook, Connecticut River	do	1/20,000	1838	7	4	28
7 78	From Saybrook to Clinton, Long Island Sound	do	1/10,000	1838	9	1	9

IV.—*List of topographical maps*—Continued.

No.		State.	Scale.	Year.	Statute miles.		Area.
					Length.	Width.	
79	Mouth of Connecticut River	Connecticut	1/10,000	1838	9	2+	20
80	New Haven to Hammonasset Shore	do	1/10,000	1838	18	3	54
81	No separate map, but included in map No. 22	do	1/10,000	1838	18	4	72
82	Nyantic River and Thames River	do	1/10,000	1839	10	4	40
82*a*	New London Harbor, west of Thames	do	1/10,000	1846	4½	2½	11
82*b*	New London Harbor, east of Thames	do	1/10,000	1846	4	2¼	9
83	Thames River	do	1/10,000	1839	9	2	18
83*a*	Continuation of Thames River	do	1/10,000	1841	3½	2	7
84	From Mystic Bridge to Noye's Point, on Fisher's Island Sound	do	1/10,000	1839	18	4	72
85	From Thames River to Lantern Hill	do	1/10,000	1839	6	6	36
86	Block Island	Rhode Island	1/10,000	1839	6	2	12
87	From Noyes Point to Point Judith	do	1/10,000	1839	15	1¾	25

88	Point Judith to McSparran Hill, Shore Narragansett Bay	.....do.....	1/10,000	1839	7	2	14
89	McSparran Hill to Tiffs.....	.....do.....	1/10,000	1839	8	2½	20
90	From Tiffs Hill West.....	.....do.....	1/20,000	1839	7	5½	38
91	From Hudson River to Ridgeville.....	.....do.....	1/20,000	1839	22	7	155
92	From Pompus Hook to Fort Lee, Hudson River.....	New Jersey	1/10,000	1839	7	3	20
93	From North Scalemberg to the Passaic.....	.....do.....	1/10,000	1839	10	2¼	22
94	From Hackensack to Patterson.....	.....do.....	1/10,000	1839	7	3	21
95	From Patterson to Weasel.....	.....do.....	1/10,000	1839	6	3	18
96	From Hackensack to Newark.....	.....do.....	1/10,000	1839	10	3	30
97	Belleville.....	.....do.....	1/10,000	1839	3	1	3
98	From Weasel to Springfield.....	.....do.....	1/10,000	1839	13	3½	45
99	Springfield.....	.....do	1/10,000	1839	4	3	12
100	Rahway.....	.....do.....	1/10,000	1839	3	2	6
101	From East Haven to Hammonassett.....	Connecticut	1/10,000	1839	18½	4½	83¼
102	From Tashua to Mount Carmel.....	.....do.....	1/20,000	1839–'40	26	7	182
103	West of Tashua.....	.....do.....	1/10,000	1839	14	2½	35
104	Scofield.....	.....do.....	1/10,000	1839	5	3	15

IV.—*List of topographical maps*—Continued.

No.		States.	Scale.	Year.	Statute miles.		Area.
					Length.	Width.	
105	Stanwick	Connecticut	1/10,000	1839	9	2½	22
106	Round Hill	New York	1/10,000	1839	8	1½	12
107	South of Buttermilk, Hudson River	do	1/10,000	1839	12	3	35
108	Greensbury, Hudson River	do	1/10,000	1839	12	3½	40
109	Kingsbridge, Hudson River	do	1/10,000	1839	4	1½	6
110	From Navesink to Poplar Creek	New Jersey	1/10,000	1839	10	4½	45
111	From Poplar Creek to Manasquack	do	1/10,000	1839	9	3½	30
112	From Manasquack to Metedeconk	do	1/10,000	1839	7	4	28
113	From Metedeconk to Cedar Creek	do	1/10,000	1839	12	5	60
114	From Cedar Creek to Barnegat	do	1/10,000	1839	9	4	36
115	From Barnegat to Little Egg Harbor	do	1/10,000	1839	19	5½	105
116	From Metedeconk to Barnegat Inlet Beach	do	1/20,000	1839	18	⅔	12
117	From Barnegat Inlet to Great Swamp	do	1/20,000	1839	19	½	10

118	From Shrewsbury to New Brunswick	do	1/20,000	1840	22	6	130
119	Milltown	do	1/10,000	1840	5	4	20
120	North Stonington	Connecticut	1/10,000	1840	6	2½	15
121	Potter Hill	do	1/10,000	1840	5	4½	22
122	From Hopkinton City to Sand Hill	Rhode Island	1/10,000	1840	10	3	30
123	Princeton	New Jersey	1/10,000	1840	8	4	32
124	Kingston	Rhode Island	1/20,000	1840	6	2	12
125	Joshua Champlin	do	1/20,000	1840	5	2½	12
126	Clinton	Connecticut	1/20,000	1840	2⅔	2⅔	7
127	East of Ridgefield	do	1/10,000	1840	9	7	63
128	West of Hudson river	New York	1/20,000	1840	18	6	80
129	South Rahway	New Jersey	1/20,000	1840	9	3	27
130	New Market	do	1/10,000	1840	11	3	33
131	Bound Brook	do	1/10,000	1840	11	2½	27
132	New Brunswick	do	1/10,000	1840	9	3	27
133	Sandhills	do	1/10,000	1840–'41	12	5	60
134	Delaware River from Wilmington to Pea Patch Island	Del. and N. Jersey	1/20,000 1/10,000	1841	13	4	52

IV.—*List of topographical maps*—Continued.

No.		State.	Scale.	Year.	Statute miles.		Area.
					Length.	Width.	
134*a*	Duplicate of No. 134 from Wilmington to New Castle..	Del. and N. Jersey..	1/10,000	1841	5	2	10
135	Delaware River from Pea Patch Island to Liston's Tree.	.....do.....	1/10,000	1841	12	4	48
136	Delaware River from Liston's Point to Ben Davis's Point.	.....do.....	1/10,000	1841	15	6	90
137	From Little Egg Harbor to Dry Inlet.....	New Jersey	1/20,000	1841	12	6	72
138	From Dry Inlet to Great Egg Harbor.....	.....do.....	1/10,000	1841	5	3 1/3	17
139	Between Princeton, Trenton, and Pennington.....	.....do.....	1/20,000	1841	13	7	91
140	Between Shrewsbury and Princeton	.....do.....	1/20,000	1841	30	7	210
141	Great Egg Harbor to Corson's Inlet.....	.....do.....	1/10,000	1842	5	3	15
142	From Corson's Inlet to Cape May Court House.....	.....do.....	1/10,000	1842	15	3	45
143	From Cape May Court House to Cape May Island.....	.....do.....	1/10,000	1842	13	3	39
144	From Cape May Court House to Cape May Light-house.....	.....do.....	1/10,000	1842	8	2	16
145	From Bombay Hook Island to Mispillion Light-house....	Delaware	1/20,000	1842	21	2 1/4	48

146	From Mispillion Light-house to Cape Henlopen, Delaware Bay	do	1/20,000	1842	20	2	40	
147	From Ben Davis's Point to Dennis Creek, Delaware Bay	New Jersey	1/20,000	1842	28	1¼	35	
148	From Dennis Creek to Cape May Light-house, Delaware Bay	do	1/10,000	1842	19	1+	22	
149	From Goshen to Fishing Creek, peninsula of Cape May	do	1/10,000	1842	13	2	26	
150	From Cohansey Creek to Salem Creek, east side of Delaware River	do	1/20,000	1842	31	4	124	
151	From Salem Creek to Pennsgrove, east side of Delaware River	do	1/20,000	1842	24	7⅛	176	
152	From Cohansey Creek to Dennisville, Delaware Bay	do	1/20,000	1842	31	6	186	
153	From Hendrickson's Mill to Manasquan Bridge, New Jersey	do	1/20,000	1842	13	8	104	
154	From Tom's River Village to Bergen Furnace, New Jersey	do	1/20,000	1842	12⅜	8	101⅛	
155	From Barnegat to Dover Forge	do	1/20,000	1842	11	9	99	
156	Delaware River, from Pennsgrove to Lazaretto	Penn. and N. Jersey	1/10,000	1841–'2	13	3	39	
	156[1] and 156*a*, extension of Pennsgrove to Lazaretto	do	1/10,000	1846	.....	.....	.....	
157	Delaware River, from Lazaretto to Schuylkill river	do	1/10,000	1842	10	3	30	
158	Delaware River, from Schuylkill river to Camden and Screw Dock	do	1/10,000	1843	8	3	24	

IV.—*List of topographical maps*—Continued.

No.		State.	Scale.	Year.	Statute miles.		Area.
					Length.	Width.	
158*a*	Duplicate of wharf part of Philadelphia and opposite.....	Penn. and N. Jersey	1/5,000	1843	4⅜	3	14
159	Delaware River, from Rancocus Creek to Bristol and Burlington.....	.....do.....	1/10,000	1843–'4	9½	4	38
160	Delaware River, from Richmond to Rancocus Creek.....	.....do.....	1/10,000	1843–'4	10	4½	45
161	From Wilmington to Iron Hill and Ash Signal.....	Del. and Maryland..	1/20,000	1843	12	5	60
162	From Ash Signal to Rigg's Hill.....	Maryland	1/20,000	1843	10	4	40
163	Delaware River, from Bristol to Newbold's Island.....	Penn. and N. Jersey	1/10,000	1844	10	2½	25
164	Delaware River, from White Hill to Trenton	Penn. and N. Jersey	1/10,000	1844	6½	3½	33
165	Delaware River, from Newbold's Island to White Hill....	.....do.....do....	1/10,000	1844	4	3	12
166	From Thomas's Point to Sandy Point, Chesapeake Bay..	Maryland.....	1/10,000	1844	7½	3	22½
167	From Sandy Point to Bodkin, Chesapeake Bay.....	.....do.....	1/10,000	1844	7	2	14
168	Severn River, from Beeman's Point to head of Round Bay.	.....do.....	1/10,000	1844	11	3½	38½
169	Magothy River, a branch of Chesapeake Bay.....	.....do.....	1/10,000	1845	5½	3	16½

170	Seaconnet River	Rhode Island	1/10,000	1844	9	3	27
171	Vicinity of Base on Kent Island, Chesapeake Bay	Maryland	1/10,000	1844	15	1	15
172	From Beaver Tail to Seaconnet River	Rhode Island	1/10,000	1844	11	2	22
173	From Seaconnet Point to Mishaum Point	R. Island and Mass.	1/10,000	1844	13	2½	32½
174	The Northeast River	Maryland	1/10,000	1844–'45	5	4	20
175	Head of Chesapeake Bay and mouth of Northeast River	do	1/10,000	1844–'45	8	2½	20
176	Elk and Bohemia Rivers & Back Creek (Chesapeake Bay)	do	1/20,000	1845	14	5	70
177	Eastern Shore, Swan Point, and Worton Point	do	1/20,000	1845	13	2	26
178*a*	Head of Chesapeake Bay, between Spesutie Narrows and Havre de Grace, east side	do	1/10,000	1845	5	2	10
178*b*	Susquehanna River and the Towns of Havre de Grace and Port Deposit	do	1/10,000	1845	6	3½	20
179	Country lying between Swan Creek and Bush River	do	1/20,000	1845-'46	10	4	40
180	Eastern Shore of Buzzard's Bay	Massachusetts	1/10,000	1845	14	1½	21
181	Elizabeth Islands	do	1/10,000	1845	15½	1½	23¼
182	From Mishaum Point to Clark's Point, Buzzard's Bay	do	1/10,000	1844	5	2½	11
183	From Clark's Point to New Bedford, Buzzard's Bay	do	1/10,000	1844	6	1	6
184	From Sconticut Neck to Cromeset Neck, Buzzard's Bay	do	1/10,000	1845	7	3	21

IV.—*List of topographical maps*—Continued.

No.		State.	Scale.	Year.	Statute miles.		Area.
					Length.	Width.	
185	From Cromeset Neck to Stony Point, Buzzard's Bay	Massachusetts	1/10,000	1845	12	3	36
186	Between Bush River and Baltimore, including approaches to the city	Maryland	1/20,000	1846	18	4	72
187	Western Shore, from Saunders's Point to Chew's, including West River and Herring Bay	do	1/20,000	1846	16	2	32
188	From Swan Creek to Eastern Neck Inlet	do	1/20,000	1846	8	1	8
189	Shores of Chester River	do	1/20,000	1846	16	1	16
190	Mouth of Chester River	do	1/20,000	1846	17	6	102
191	Martha's Vineyard, south shore, from Nashaquitsa Cliff, east	Massachusetts	1/10,000	1846	13	3½	45
192	Martha's Vineyard, north shore, from East Chop to Menemsha Bight	do	1/10,000	1846	14	3	42
193	Martha's Vineyard, east end, from Cape Poge to East Chop	do	1/10,000	1846	9	2	18
194	West End of Nantucket, including Tuckernuck and Muskeget	do	1/10,000	1846	14	3¼	45

195	East End of Nantucket, from Great Point to Siasconset..	.....do.....	1/10,000	1846	7½	4½	33¾
196	Pasquotank River, from its mouth to Floating Bridge....	North Carolina	1/20,000	1847	.....	.....	122
197	Big Hatty River, Albemarle Sound.....	.....do.....	1/20,000	1847	4	2	8
198	Environs of Little River, Albemarle Sound.....	.....do.....	1/20,000	1847	9	4	36
199	Perquimons River, Albemarle Sound	.....do.....	1/20,000	1848	12	4	48
200	Shores of Albemarle Sound, from Laurel Point to Sandy Point	.....do.....	1/20,000	1848	10	7	70
201	Head of Chesapeake Bay, from Bush to Susquehanna	Maryland	1/20,000	1845	14	5	70
202	Bush, Gunpowder, and Middle Rivers.....	.....do.....	1/20,000	1846	14	4	56
203	Back River.....	.....do.....	1/20,000	1846–'7	10	5	50
204	Eastern Shore of Maryland, from Wade's Point to Locust Point, including Sharp's and Poplar Islands	.....do.....	1/20,000	1846–'47	10	4	40
205	Baltimore City	.....do.....	1/10,000	1845	8	4	32
206	Eastern Shore of Patapsco River.....	.....do.....	1/20,000	1845–'46	12	3	36
207	Western Shore of Patapsco River.....	.....do.....	1/20,000	1846	12	3	36
208	Shores of Patapsco River (duplicate)	.....do.....	1/20,000	1847	12	8	
209	Part of Kent Island	.....do.....	1/20,000	1847	9	2	18

IV.—*List of topographical maps*—Continued.

No.		State.	Scale.	Year.	Statute miles.		Area.
					Length.	Width.	
210	Eastern Shore of Maryland, embracing Kent Island, Eastern Bay, Wye, and St. Michael's Rivers, Broad Creek, &c	Maryland	1/20,000	1847	20	6	120
211	St. Michael's River and Third Haven Creek, Easton, &c	do	1/20,000	1847	16	4	64
212	Shores of Choptank River, from Cook's Point to Cambridge	do	1/20,000	1847	10	4	40
213	From Cape Henlopen to Indian River	Delaware	1/20,000	1845	16	6	96
214	Southern Shore of Boston Bay, from Milton Mills to Hingham	Massachusetts	1/10,000	1847	10	3	30
215	Southern Shore of Boston Bay, Woods end to Cohasset	do	1/10,000	1847	5	1½	7½
216	City of Boston and Charlestown	do	1/5,000	1846–'47	3¾	3	11
216*a*	East Boston and part of South Boston						
217	Governor's and Castle Islands, in Boston Harbor	do	1/5,000	1846	½	⅛	
218	From Newport to Roxbury	do	1/10,000	1847	4½	2	9
219	From Roxbury to Malden	do	1/10,000	1847	7	3	21

220	From Point Shirley to Point Pines and Winnisimet Village	do	1/10,000	1847	7	3	21
221	Nahant, in Boston Harbor	do	1/10,000	1847	2	½	1
222	From Cohasset to Scituate, Eastern Shore of Massachusetts	do	1/10,000	1847	5	2	10
223	From Nantasket Hill to Green Hill	do	1/10,000	1847	5	½	2½
224	Islands in Boston Harbor	do	1/10,000	1847	1	1	1
225	From Point Gammon Light-house to Bass River	do	1/10,000	1847	3	2	6
226	Entrance to Mobile Bay	Alabama	1/20,000	1847	4	4	16
227	Horn Island, east entrance	Mississippi	1/10,000	1847	.....	.....	½
228	Cat Island and Isle au Pied	Alabama	1/20,000	1848	4	1	4
229	North Shore of Mississippi Sound, from Grand Point to Grand Batture	do	1/20,000	1348	9	2	18
230	Ship Island	do	1/20,000	1848	2	1	2
231	Petit Bois Island	do	1/20,000	1848	2	1	2
232	South Shore Albermarle Sound, from Long Shore to Laurel Point	North Carolina	1/20,000	1848	23	2	46
233	South Shore Albermarle Sound, from Edenton to Sandy Point	do	1/20,000	1848	6	2	12
234	Island, No Man's Land	Massachusetts	1/10,000	1846	1	1	1

IV.—*List of topographicol maps*—Continued.

No.		State.	Scale.	Year.	Statute miles.		Area.
					Length.	Width.	
235	From Falmouth to Popponessett Bay	Massachusetts	1/10,000	1846	9	3	27
236	From Popponessett Bay to Centreville	do	1/10,000	1846	8	3	24
237	From Centreville to Point Gammon Light	do	1/10,000	1846	5	3	15
238	From Bass River to Harwich	do	1/10,000	1847	7	4	28
239	Dutch Island Harbor	do	1/10,000	1848	3	1	3
240	Pamansett River	do	1/10,000	1848	5	2	10
241	Chesapeake Bay, Choptank River, from Hambrook's Point to Cabin Creek, including the town of Cambridge	Maryland	1/20,000	1848	11	3½	38½
242	Chesapeake Bay, Choptank River, from Cabin Creek to Wing's Landing	do	1/20,000	1848	13¼	2	26½
243	Chesapeake Bay, Eastern Shore, Hooper's Straits and part of Honga River	do	1/20,000	1848	7	6	42
244	Chesapeake Bay, Eastern Shore, Barren Island, and upper part of Honga River	do	1/20,000	1848	6	6	36
245	Chesapeake Bay, Mouth of Patuxent River	do	1/20,000	1848	10¼	4	41

246	Chesapeake Bay, Western Shore, from Cedar Point to Point No Point	do	1/20,000	1848	12¾	1½	19
247	Chesapeake Bay, Western Shore, from Point No Point to Point Lookout	do	1/20,000	1848	7	1	7
248	South River, Chesapeake Bay	do	1/20,000	1846–'47	10	5	50
249	East Shore of Chesapeake Bay, from Hill's Point to Meekin's Neck	do	1/20,000	1848	11	6	66
250	From Indian River to Beach-house Signal	Del. and Maryland	1/20,000	1848	4	3	12
251	Patapsco River	Maryland	1/20,000	1848	12	3	36
252	City of Baltimore and vicinity	do	1/10,000	1848	8	4	32
253	Provincetown and part of Truro, Cape Cod, from Race and Long Points to Highland Light	Massachusetts	1/10,000	1848	10	2	20
254	West Shore, Truro and Wellfleet, Cape Cod, from Mouth of Paunet River to Billingsgate	do	1/10,000	1848	7½	1	10
255	Truro, Wellfleet, and Eastham, East Shore of Cape Cod, from Highland Lights to Nausett Light	do	1/10,000	1848	14	3	42
256	West Shore of Eastham, Cape Cod, from Nausett Three Lights South		1/10,000	.....	2	1	2
257	Hellgate, from Blackwell's Island to South Brothers	New York	1/5,000	1848	3	3	9
258	Sandy Hook	do	1/20,000	1848	7	1	7

IV.—Continued.

3. *List of hydrographic charts.*

No.	Description of its position on the coast.	Scale.	Year.
1	Long Island Sound, between Throg's Neck and Davenport Point, north side	1/10,000	1837
1*a*	Long Island Sound, between Hewlett's Point and Whortleberry Island	1/10,000	1837
2	Long Island Sound, between Throg's Neck and Mattinicock, south side	1/10,000	1837
3	Long Island Sound, from Whortleberry Island to Greenwich Point	1/10,000	1836–'37
3*a*	Long Island Sound, from Whortleberry Island to Captain's Island	1/10,000	1836–'37
3*b*	Long Island Sound, from Minursen Island to Greenwich, north shore	1/10,000	1836–'37
3*c*	Long Island Sound, from Sands Light to Mattinicock, south shore	1/10,000	1836–'37
4	Long Island Sound, from Greenwich Point to Sheffield Light	1/10,000	1836
4*a*	.....Do.....do.....do.....north side only	1/10,000	1836
4*b*	Long Island Sound, from Oak Neck to Eaton Point, south side	1/10,000	1836
4*c*	Long Island Sound, from Oyster Bay to Cold Spring Harbor	1/10,000	1836
4*d*	.....Do.....do.....do.....duplicate	1/10,000	1836
4*e*	.....Do.....do.....do.....reduction of 4*c*	1/3,333⅓	1836

4*f*	.....Do.....do.....do.....do.....	1/3,333⅓	1836
4*g*	Long Island Sound, Cow Harbor.....	1/10,000	1836
4*h*	.....Do.....do....a reduction of 4g.....	1/3,333⅓	1836
4*i*	Long Island Sound, Huntington Harbor.....	1/10,000	1836
5	Long Island Sound, from Sheffield Island Light to Black Rock, north side.....	1/10,000	1835
5*a*	Long Island Sound, from Sheffield to Frost Point.....	1/10,000	1835
5*b*	Long Island Sound, from Frost Point to Black Rock.....	1/10,000	1835
6	Long Island Sound, from Eaton's Point to Old Field Point, south side	1/20,000	1837
7	Long Island Sound, from Eaton's Point to Smith's Town, south side.....	1/10,000	1837
8	Long Island Sound, from Black Rock to Charles I. Poplar, north side	1/10,000	1837
8*a*	.....Do.....do.....do.....do.....	1/20,000	1837
8*b*	Long Island Sound, from Bridgeport, N. E., north side.....	1/5,000	1837
9	Long Island Sound, from Smithtown to Oldfield Point, south side.....	1/10,000	1837
9*a*	Long Island Sound, Stony Brook, south side	1/10,000	1837
10	Long Island Sound, from Charles Island to Oyster River Point, north side.....	1/10,000	1838
11	Long Island Sound, Stratford Light House, by Charles Island to Indian Neck.....	1/20,000	1838
12	Long Island Sound, from Oldfield Point to Glover, south side	1/20,000	1838

IV.—*Hydrographic charts*—Continued

No.	Description of its position on the coast.	Scale.	Year.
13	Long Island Sound, from Oldfield Point, Miller's Place, south side	1/10,000	1838
14	Long Island Sound, from Oyster River Point, by New Haven to Saltall Station	1/10,000	1838
14*d*	Long Island Sound—Soundings in Quinnipeak River, Fairhaven	1/10,000	1838
15	Long Island Sound, from Saltall to Hoadley, north side sound	1/10,000	1838
16	Long Island Sound, from West Branton, by Hoadley to Hammonassett, north side	1/20,000	1838
17	Long Island, from Glover to Single Bull Station, south side sound	1/20,000	1838
18	Long Island Sound, from Bartlet to Tuck's Island, north side	1/10,000	1838
19	Long Island Sound, from Tuck's Island and Madison to opposite West Brook, north side	1/10,000	1838
20	Long Island Sound, from Hammonassett to Connecticut River and beyond it to Hatchet, Say's Hill, &c., north side	1/20,000	1838
21	Long Island Sound, from Manor Station to Brown's Hill Station, south side sound	1/20,000	1838
22	Long Island Sound, from Fisherman's Crotch to Say's, south, including a part of Connecticut River, north side	1/10,000	1838
23	Long Island Sound, from Griswold's to Black Point	1/10,000	1838
24	Long Island Sound, from Brown's Hill to Plum Island	1/10,000	1838

25	South Side Long Island, from West Base to East Base, and Great South Bay	1/10,000	1834
25a	.....Do.....do.....do.....do	1/20,000	1834
26	South Side Long Island, from East End of Base to Smith Point	1/20,000	1835
27	South Side Long Island, from East Base to East End of Coney Island	1/40,000	1835
27a	South Side Long Island; Fire Island Inlet	1/10,000	1834–'35
27b	South Side Long Island; Gilgo Inlet	1/10,000	1835
27c	South Side Long Island; New Inlet and Great South Bay	1/10,000	1835
27d	South Side Long Island; off shore Soundings, between Sandy Hook and Rockaway, duplicate	1/20,000	1835
28	Sandy Hook Bar	1/10,000	1835
28a	....Do....do	1/10,000	1835
28b	Soundings on Sandy Hook Bar and Rockaway, including old and new channels	1/20,000	1840
28c	Soundings on Sandy Hook Bar; Verification Chart of Gedney's Channel		1840
28d	Soundings off Rockaway and Coney Island	1/20,000	1840
28e	Soundings off Rockaway and Coney Island, in part	1/10,000	1840
28f	In Raritan Bay, Middleton Creek	1/10,000	1841
28g	Gravesend Bay and Coney Island	1/20,000	1841
28h	Raritan Bay, Shrewsbury River	1/10,000	1840

IV.—*List of hydrographic charts*—Continued.

No.	Description of its position on the coast.	Scale.	Year.
29	Raritan Bay, Kill Vankull, Newark, and New York Bay and Harbor	1/10,000	1841
29*a*	New York, Raritan, and Newark Bays	1/20,000	1836
29*b*	The Narrows of New York Bay	1/10,000	1841
29*c*	Staten Island Sound	1/10,000	1841
29*d*	Bar at the Mouth of Passaic	1/5,000	1841
30	East River, from Governor's Island to Blackwell's Island	1/10,000	1837
31	East River, from Blackwell's Island to Throg's Point, including Flushing Bay and Harlaem River; Soundings in Herring Bay	1/10,000	1837–'41
32	Hudson River, Beeker's Landing to Pollock's Point	1/5,000	1837
33	.....Do .....do.....do	1/5,000	1837
33*a*	Hudson River, from Jersey City to Fort Washington	1/5,000	1837
33*b*	.....Do .....do.....do	1/10,000	1837
34	S. S. Long Island, from East End of Base to Quogue	1/20,000	1838
34*a*	.....Do .....do.....do	1/40,000	1838
35	S. S. Long Island, from Quogue to Montauk Point	1/20,000	1838

35*a*	.....Do.....do.....do.....	1/20,000	1838
35*b*	.....Do.....do.....do.....	1/40,000	1838
36	Great and Little Peconic Bays.....	1/20,000	1839
37	Southold and Orient Bays, and Greenport Harbor.....	1/10,000	1838
37*a*	Greenport Harbor.....	1/10,000	
38	Gardiner's Bay	1/20,000	1838
39	Orient Bay.....	1/10,000	1839
40	Sag Harbor.....	1/10,000	1839
41	Sag Harbor and adjacent waters.....	1/10,000	1839
42	Block Island Sound, from Quanacatog to Point Judith.....	1/20,000	1839
42*	.....Do.....replotting of Watch Hill Reef		1847
42*a*	.....Do.....east end Fisher's Island to Quanacatog.....	1/20,000	1839
42*b*	.....Do.....Plumb Point to Fisher's Island, east end	1/20,000	1839
42*c*	.....Do.....additional Soundings between Plum Island and Montauk	1/10,000	1845
42*d*	.....Do.....do.....do.....	1/10,000	1845
42*e*	.....Do.....a composition of 42*b*, 42*c*, and 44, for the purpose of Bedford Reef	1/10,000	
42*f*	.....Do.....from Gull Island to Watch Hill	1/10,000	1846

IV.—*List of hydrographic charts*—Continued.

No.	Description of its position on the coast.	Scale.	Year.
43	Long Island Sound, from Black Point to New London Harbor, including N. Shore Sound	1/10,000	1839
43*a*	.....Do.....New London Harbor	1/10,000	
43*b*	.....Do.....Frank's Ledge, off New London Harbor	1/10,000	1847
44	.....Do.....from Oyster Point to Race Point, Fisher's Island	1/10,000	1839
45	.....Do.....Fisher's Island Sound	1/20,000	1839
45*a*	.....Do.....do	1/10,000	1839
45*b*	.....Do.....Pawcatuck River, near Stonington	1/10,000	
45*c*	.....Do.....Fisher's Island Sound (duplicate of 45*a*)	1/10,000	1839
46	Off Shore Deep Soundings from Cape May to Montauk	1/400,000	1842
46*a*	.....Do.....do.....do	1/400,000	1842–'44–'47
47	Coast of New Jersey, Long Branch to Barnegat	1/20,000	1840
47*a*	.....Do.....from Highland Light to Long Branch	1/20,000	1840
47*b*	.....Do.....from Long Branch to Mittiticonck	1/20,000	
47*c*	.....Do.....from Jones' to Barnegat	1/20,000	1840

47*d*	.....Do.....from Sandy Hook to Barnegat.....	$\frac{1}{40,000}$	1840
48	Barnegat Bay.....	$\frac{1}{10,000}$	1840
48*a*	New York Bay, Shrewsbury River	$\frac{1}{10,000}$	1840
48*b*	Coast of New Jersey, Barnegat Bay and Inlet, and Thom's River	$\frac{1}{10,000}$	1840
48*c*	.....Do.....Little Egg Harbor.....	$\frac{1}{10,000}$	1840
48*d*	.....Do.....do.....	$\frac{1}{10,000}$	1840
49	.....Do.....Barnegat to Little Egg Harbor.....	$\frac{1}{20,000}$	1841
49*a*	.....Do.....	$\frac{1}{40,000}$	1847
49*b*	.....Do.....Long Branch to Barnegat Inlet	$\frac{1}{20,000}$	1840
50	Long Island Sound, Thames Ferry, from Gates's Ferry to New London.....	$\frac{1}{10,000}$	1839
51	.....Do.....do.....do.....to Major Bache's survey.....	$\frac{1}{10,000}$	1841
52	Coast of New Jersey, Long Branch to Cape May, (contains Register of Tides).....	$\frac{1}{40,000}$	1841
53	Off shore of Cape May, at mouth of Delaware River.....	$\frac{1}{40,000}$	1841
54	Delaware Bay and River, No. 1, from Capes up to Fishing Creek, Jersey shore, and Clark's, on the Delaware	$\frac{1}{20,000}$	1841
54*a*	Delaware Bay and River, No. 1, used in filling up	$\frac{1}{20,000}$	1841
54*b*	.....Do.....do.....Crow Shoal.....	$\frac{1}{10,000}$	1841
54*c*	.....Do.....do.....Duck, Mahon, Cohansey, and Maurice Rivers.....	$\frac{1}{20,000}$	1843

IV.—*List of hydrographic charts*—Continued.

No.	Description of its position on the coast.	Scale.	Year.
55	Delaware Bay and River, No. 2, from Fishing Creek and Clark's Point, up to Egg Island Light-house	1/20,000	1842
55*a*	Delaware Bay and River, No. 2, (accessory part of)	1/10,000	1842
56	Delaware Bay and River, No. 3, Egg Island Light up to Davis's	1/20,000	1842
56*a*	Delaware Bay and River, Resurvey of Overfalls	1/20,000	1847
57	Coast of New Jersey, Amboy to Sandy Hook	1/10,000	1841
58	.....Do.....Kills, Southern part of Staten Island	1/10,000	1841
59	.....Do.....Gravesend Bay	1/10,000	1841
60	South Side Long Island, Rockaway Inlet, and part of Jamaica Bay	1/10,000	1841
61	.....Do.....Communipaw Flats, Gowannis Bay, and Buttermilk Channel	1/10,000	1841
62 } 63	Included in No. 31		
64	Hackensack River, from Upper to Lower Bridge	1/10,000	1841
65	Delaware Bay and River, No. 4, from Ben Davis's to Liston's Tree	1/10,000	1841
66	Delaware Bay and River, No. 5, Liston's Tree, Newcastle	1/10,000	1841
66*a*	.....Do.....No. 5*a*.....do.....(resurvey in 1843)	1/20,000	1840

67	..... Do.	No. 6, Newcastle to Dupont's Wharf	1/10,000	1841
67a	..... Do. duplicate.	No. 6, ... do	1/10,000	1841
67b	..... Do.	No. 6b, Christiana Creek	1/10,000	1841
68	..... Do.	No. 7, Dupont's Wharf to Tonkin's Island	1/10,000	1842
69	..... Do.	No. 8, Tonkin's Island, Upper Tinicum	1/10,000	1842
70	..... Do.	No. 9, Upper Tinicum to Fort Mifflin	1/10,000	1842
71	..... Do.	No. 10, Fort Mifflin to Navy Yard	1/10,000	1843
72	..... Do.	No. 11, Navy Yard up to Bridesburg	1/10,000	1843
72a	..... Do.	No. 11a, Screw Dock to Navy Yard	1/5,000	1843
73	..... Do.	No. 12, Bridesburg to Dunk's	1/10,000	1843
74	..... Do.	No. 13, Dunk's to Smith's	1/10,000	1844
75	..... Do.	No. 14, Smith's to Shin's	1/10,000	1844
76	..... Do.	No. 15, Shin's above Bordentown to Trenton Bridge	1/10,000	1844
76a	..... Do.	Reduction, from mouth up to Trenton	1/80,000	
77	..... Do.	from Cape Henlopen to Indian River Inlet	1/20,000	1841
77a	..... Do.	from Indian River to Rehoboth Bay	1/20,000	1847
78	..... Do.	Soundings off Cape May and Henlopen	1/40,000	1844

IV.—*List of hydrographic charts*—Continued.

No.	Description of its position on the coast.	Scale.	Year.
79	Delaware Bay and River, Hen and Chickens' Shoals	1/20,000	1847
80	Coast of Rhode Island; Point Judith Light to East Rock	1/20,000	1844
81	.....Do.....and Messach, East Rock and Mishaum Point	1/20,000	1844
81*a*	.....Do.....Westport Harbor	1/10,000	1844
82	Bulkhead Shoals	1/10,000	1846–'47
83	Crow Shoal and Cape May Roads	1/10,000	1847
84	Cape May Channels	1/10,000	1847
85			
86			
87			
88			
89			
90	Coast of Massachusetts, Harbor of New Bedford	1/20,000	1844–'45
91	.....Do.....Buzzard's Bay, western section	1/20,000	1845

92	.....Do.....do.....eastern section.....	1/20,000	1845
93	.....Do.....Holmes's Hole.....	1/10,000	1845
93*a*	.....Do.....do.....	1/40,000	
93½	.....Do.....and from Point Judith to Head of Buzzard's Bay.....	1/80,000	1842
94	.....Do.....additional Soundings between Point Judith, and near Block Island.....	1/40,000	1845
94*a*	.....Do.....Buzzard's Bay, and Martha's Vineyard Sound.....	1/20,000	1845–'46
95	Chesapeake Bay, Magothy River.....	1/10,000	1845
96	.....Do.....Patapsco River and the Port of Baltimore.....	1/10,000	1845
96*a*	.....Do.....Reduction of.....		
97	.....Do.....Sandy Point to Spry's Island.....	1/20,000	1845
98	.....Do.....Annapolis Harbor and Roads.....	1/20,000	1845
99	.....Do.....Susquehannah.....	1/10,000	1846
100	.....Do.....Gunpowder, Middle, and Back Rivers.....	1/20,000	1846
100*a*	.....Do.....Susquehannah, Bush, Gunpowder, Middle, and Back Rivers.....	1/80,000	1846
101	.....Do.....Bohemia River and Back Creek.....	1/10,000	1846
102	.....Do.....Bush River.....	1/20,000	1846
103	.....Do.....Elk River.....	1/10,000	1846

IV.—*List of hydrographic charts*—Continued.

No.	Description of its position on the coast.	Scale.	Year.
104	Chesapeake Bay, Northeast River	1/10,000	1846
104*a*	.....Do.....Elk and Northeast Rivers	1/80,000	1846
105	.....Do.....Chester River	1/20,000	1846
105*a*	.....Do.....Mouth of Chester River	1/20,000	1847
105*b*	.....Do.....Sassafras River	1/20,000	1847
105*c*	.....Do.....Eastern Bay, Wye, and Miles Rivers	1/20,000	1847
106	Boston Harbor, (the inner Harbor)	1/5,000	1846
107	Nantucket Shoals	1/40,000	1846
108	Nantucket Harbor, (being 109 enlarged in part)	1/10,000	1846
109	Nantucket Harbor	1/20,000	1846
110	Harbor of Edgartown	1/10,000	1846
111	Phillips' Ledge, Green Harbor River		1846
111*a*	Harbor of Hyannis	1/20,000	1847
112	Chesapeake Bay, from mouth of Susquehannah to Turkey Point	1/10,000	1847

113	.....Do..... Severn River to Tilghman's Island, Severn, West River, &c.....	1/20,000	1846
114	.....Do..... Stephenson's Point to Poole's Island.....	1/10,000	1846
115	.....Do..... Turkey Point to Howell's Point.....	1/10,000	
116	Mississippi Sound, north of Dauphin Island	1/20,000	1847
117	Pasquotank River	1/20,000	1847
118	Off-Shore Soundings, south of Cape Henlopen.....	1/400,000	1847
119	Entrance and approaches to Mobile Bay	1/20,000	1848–'3
120	Lower part of Mobile Bay.....	1/20,000	1848
121	Cat and Ship Island Harbors	1/20,000	1848
122	Hell Gate, New York	1/2,500	1848
123	Buttermilk Channel, New York.....	1/5,000	1848
124	Albemarle Sound, from Wade's Point and Pear Tree Point, to Harvey's Neck and Scuppernong River	1/20,000	1848
125	Chesapeake Bay, from Sharp's Island to Cove Point	1/20,000	1847–'48
126	Boston Harbor, and approaches.....	1/20,000	1846–'47
127	Edgartown and Vineyard Sound	1/20,000	1848
128	Nantucket South Shoals.....	1/40,000	1848
129	Muskeget Channel.....	1/20,000	1848

IV.—*List of hydrographic charts*—Continued.

No.	Description of its position on the coast.	Scale.	Year.
130	Chesapeake Bay, from Cove Point to Point No Point	1/20,000	1848
131	Patuxent River to St. Leonard's	1/20,000	1848
132	From Indian River Inlet to Beach House Signal	1/40,000	1848
133	From Fire Island to Moriches Bay, south side of Long Island	1/40,000	1848
134	Lower Bay and Bar of New York	1/10,000	1848
135	Seaconnet River	1/10,000	1848
136	Newport Harbor	1/10,000	1848

4. *List of soundings and angle books, (hydrographic books.)*

SECTION II.—*Journals of Soundings.*

Contents.	Year.	Fair journals.	Original volumes.
Great South Bay	1834	1	1
New Inlet and Rockaway Beach	1835		
Sandy Hook Bar	1835	2 }	6
Do	1835	3 }	
Sandy Hook Bar and Raritan River, Staten Island Sound and Newark Bay	1836	4	6
Newark Bay and Raritan River	1836	5	6
New York and East River	1837	6	15
North and East Rivers	1837	7	3
Bay of New York	1844		
Hudson River, from Jersey City to Fort Washington, and East River from Governor's Island to Throg's Point, including Flushing and Harlæm Rivers	1845		
East Coast of Long Island, and Gardiner's Bay	1838	8	16
Peconic and Southold Bays, north side of Shelter Island and Greenport Harbor	1838	9	6
Greenport, Orient, and Sag Harbor	1839	10	14
Long Island, from Quanacatog to Point Judith	1839	11	1
Off Sandy Hook and Coast of New Jersey, from Sandy Hook to Barnegat	1840	12	7
Deep Sea Soundings, from Cape May to Montauk Point	1842	.....	5
Shrewsbury Inlet and River, Barnegat Bay and Inlet	1840	13	15
Little Egg Harbor	1840	14	13
Raritan Bay and River, Jamaica Bay, Hog Inlet, Gravesend Bay, Flushing Bar, East and Harlæm Rivers	1841	.....	10
Between Barnegat and Little Egg Harbor, and off Capes of Delaware	1841	15	14
Off Sandy Hook, off Little Egg Harbor, off Coast of New Jersey, and off Cape May. Position of Diamond Rock, &c.	1843	16	7
Long Island Sound, from Sheffield Island Light-house to Black Rock; from Sheffield Island Light-house to Frostpoint; from Frostpoint to Black Rock	1835	17	6
Long Island Sound, Sheffield Island, and Cold Spring Bay	1836	18	6
Cold Spring Bay, City Island, and Hunter's Ball	1837		
Long Island Sound, City Island, Hunter's Ball, Johnson's Creek	1837	19	1

IV.—*List of soundings*—Continued.

Contents.	Year.	Fair journals.	Original volumes.
Long Island Sound, New Haven, and Hammonassett	1838	20	1
Long Island Sound, Hammonassett, and Sachem's Head	1838	21	3
Long Island Sound, New London, and Thames River	1839	22	2
Delaware Bay and River	1840	23	2
Delaware Bay and River, from Reedy Island to Newcastle; off Bombay Hook, between Arnold and Cohansey; off False Egg Island; on Joe Flogger, Cross Ledge; off Thrum Cap, between Wilmington and Newcastle	1841	.....	3
Delaware Bay and River	1841	24	
Delaware Bay and River; off Cohansey; off Newcastle, near Bulkhead Shoal; off Joe Flogger; off Upper Light Boat, between Highie and Flushing Creek; Crow Shoal, between Upper and Lower Light Boats; off Capes; off Breakwater, Mahon's Ditch, and Breakwater; Brandywine Shoals	1842	.....	4
Delaware Bay and River; off and inside mouth of Delaware Bay; between Chester and Marcus Hook; Chester and Lazaretto; Lazaretto and Billingsport; between Fort Mifflin and Chew	1842	25	2
Delaware Bay and River; Breakwater Harbor, between Lewes and Plum Point; Cohansey River; Bowers' and Hog Islands, near Cape Henlopen; off Muddy Signal, Main Channel; Bowers' and Mispillion, Cross Ledge and Capes, between Upper Light Boat and Fishing Point; Gloucester and Navy Yard	1843	26	2
Delaware Bay and River, between Camp and 10-mile Point; 10-mile Point and Bakehouse; Cooper's Point and North Pettis; Schuylkill River; Smith's Point and Camden; off Philadelphia, between China Dock and Burlington; off Burlington, between Burlington and Bristol; between Snow and Duck Island	1843	27	2

Total of original Sounding books, to this date, 179 ; duplicates 27.

SECTION I.—*Journals of Soundings.*

Contents.	Year.	Fair journals.	Original volumes.
Between Point Judith and New Bedford	1844	41	2
Off Block Island and Buzzard's Bay, and Vineyard Sound	1845	42	3
Coast of Massachusetts; Vineyard Sound; Nantucket Harbor and South Shoals; Edgartown Harbor	1846	43	57
Coast of Massachusetts; Boston Harbor; Hyannis; Edgartown; Hingham; Nantucket Shoals, &c.	1846–'47	44	
Coast of Massachusetts; off Hyannis; Broad Sound; Boston Harbor, &c	1847	45	
Coast of Massachusetts; Nantucket Shoals; Sankaty Head	1847	46	

IV.—Continued.

Section II.—*Subsequent to January 1, 1844.—Journals of Soundings.*

Contents.	Year.	Fair journals.	Original volumes.
Delaware Bay and River, between Camp and Ten Mile Point; Ten Mile Point and Bake-house; Cooper's Point and North Pettis. Schuylkill River; Smith's Point and Camden; off Philadelphia, between China Dock and Burlington; off Burlington, between Burlington and Bristol; between Snow and Duck Islands	1844	27	1
Overfalls; Crow Shoal; Cape May Roads; off New London; Rhode Island and Cuttyhunk	1847	28	10
Long Island Sound, off Montauk Point, westward of Fort Pond	1845	29	2
Long Island Sound	1845	30	5
Eastern entrance of Sound	1846		
At New Haven Harbor	1847		
Delaware Bay			
Bulkhead Shoal	1847		

SECTION III.—*Journals of Soundings.*

Contents.	Year.	Fair journals.	Original volumes.
Off Cape May and Cape Henlopen, Annapolis Harbor, etc	1844	31	13
Chesapeake Bay and Patapsco River	1845	32	9
Chesapeake Bay	1845	33	11
Head of Chesapeake Bay	1846	34	
.....Do.....do	1846	35	59
Chesapeake Bay	1846	36	
Susquehanna, Northeast, Elk, Bush, Gunpowder, and Middle Rivers, (including Tidal Observations)	1846	37	13
Gunpowder, Middle, Back, and Chester Rivers, and Delaware, near Pea Patch, (including Tidal Observations)	1846–'47	38	14
Mouth of Chester River, Sassafras River, Eastern Bay, Wye, Miles Rivers, (including Tidal Observations)	1847	39	11
Eastern Bay; Wye and Miles Rivers	1847	40	9

IV.—Continued.

Section viii.—*Journals of Soundings.*

Contents.	Year.	Fair journals.	Original volumes.
Mississippi Sound ; North of Dauphin Island ; Entrance to Mobile Bay	1847–'48	47	11
Mobile Bay ; Entrance to, and Lower Part	1848	48	12
Mobile Bay ; Entrance to Cat and Ship Island Harbors	1848	49	11
Cat and Ship Island Harbors	1848	50	5

Note.—Total of Original Sounding Books from 1844 to this date, 258 ; duplicate 23. The remaining volumes of 1848 may be estimated at 122 volumes originals, and 9 volumes of duplicates, making in all, from 1844 to 1848, inclusive, 380 original volumes and 32 duplicates.

TIDES.

5.—*List of records of tidal and current observations.*

Contents.	Year.	Bound in volumes.	Parts.
Sandy Hook, New Jersey	1835	1	1
Do.....do.	1836		
Perth Amboy.. do.	1836		
Elizabethtown Point, New Jersey	1836		
Princes' Bay, Staten Island	1836		
Fort Tompkins, Staten Island	1836		
Elizabethport, New Jersey	1836		
Newark, New Jersey	1836		
Raritan River, New Jersey	1836		
Messerau's Ferry, Staten Island	1836		
Sandy Hook, New Jersey	1837		
Tompkinsville, Staten Island, New York	1837		
Williamsburg, Long Island.....do	1837		
Throg's Point.....do	1837		
Fort Lee.....do	1837		
Governor's Island.....do	1837		
Hell Gate Ferry, Long Island ...do	1837		
Riker's Island, East River.....do	1837		
Brooklyn Navy Yard.....do	1837		
Fort Lee, New Jersey	1837		
Jersey City....do	1837		
Sandy Hook, abstract continued	1836		
Do.....do.....do	1842		
Governor's Island, Harbor of New York	1837		
Great South Bay, Long Island	1834		
Black Rock Harbor, Connecticut	1835	2	1
Cawkin's Island, Long Island	1835		
Bridgeport Harbor, Connecticut	1835		

IV.—TIDES.—*List of observations*—Continued.

Contents.	Year.	Bound in volumes.	Parts.
Sheffield Island Light-house, Connecticut	1836		
Darien River.....do	1836		
Stamford Harbor.....do	1836		
Captain's Island Light-house....do	1836		
Lloyd's Harbor, Long Island, New York	1836		
Sawpits, Westchester county, New York	1836		
Mamaroneck	1836		
Oyster Bay, Long Island, New York	1836		
Hog Island, Oyster Bay, Long Island, New York	1836		
New Rochelle	1836		
Oyster Bay, Long Island	1837		
City Island, Long Island Sound	1837		
Hewlett's Island near New Rochelle	1837	2	1
Glen Cove Wharf, Long Island	1837		
Cow Harbor, Long Island	1837		
Bridgeport, Connecticut	1837		
Stratford.....do	1837		
New Haven...do	1838		
Drowned Meadow, Long Island	1838		
Brandford Harbor, Connecticut	1838		
Sachem's Head.....do	1838		
Faulkner's Island, Long Island Sound	1838		
Saybrook Beacon, Connecticut	1838		
New London.....do	1839		
Thames River.....do	1841		
Walnut Street Wharf, Philadelphia	1840		
Newcastle, Delaware	1840		
Delaware Breakwater	1840		
Bombay Hook Light-house, Delaware bay	1841		
Cohansey Light-house.....do	1841		
Egg Island Light-house.....do	1841		
Mahon's Ditch Light	1841		
James Port Dock, Suffolk, Long Island	1838	3	1
Green Port.....do	1838		

Oyster Pond Point ..... do	1838			
South Hold Bay ..... do	1838			
Fire Place Point ..... do	1838			
Watch Hill, Rhode Island	1839			
East end of Fisher's Island	1839			
Greenport, Long Island	1839			
Orient	1839			
Sagg Harbor, Long Island	1839			
Highland House	1840			
Steamboat wharf, South Amboy	1841			
Perth Amboy	1841			
Keyport, Perth Amboy	1841			
Spermaceti Cove, Sandy Hook	1841			
At the Kills	1841			
Watt's, Jamaica Bay, Long Island, New York	1841			
Barren Island Point, Long Island, New York	1841			
Gravesend Bay, at Bath-house wharf, New York Bay	1841			
Johnson's wharf, Brooklyn, New York	1841			
New Jersey R. R. Bridge, Hackensack River	1841	3	1	
Hackensack River, New Jersey	1841			
Flushing Bay, Long Island, New York	1841			
Riker's Island, East River	1841			
Harlæm Bridge, Harlæm River	1841			
The Delaware Breakwater	1841			
Ocean House, Shrewsbury Inlet	1840	4	1	
Spermaceti Point	1840			
Barnegat Inlet, near Light-house	1840			
Jersey Station, between Ledges and Barnegat	1840			
Mouth of Double Creek	1840			
Tide Staff, off Barnegat	1840			
Station off Philby's	1840			
Tucker's Cove, Little Egg Harbor	1840			
Outer Buoy, New York	1840			
Little Egg Harbor, New Jersey	1840			
Sandy Hook	1842			
Delaware Breakwater	1842	5	1	
Mahon's River ..... Delaware Bay	1842			
Egg Island Light ..... do	1842			
Newcastle ..... do	1842—1843			
Cape May ..... do	1843			
Mahon's River	1843			

IV.—TIDES—*List of observations*—Continued.

Contents.	Year.	Bound in volumes.	Parts.
Delaware Breakwater	1843		
The Wharf at Lewes, Delaware	1843		
Philadelphia Navy Yard	1843		
Delaware Bay and River	1843		
Cold Spring Inlet, Cape May, New Jersey	1843	6	1
Delaware Bay, off Higbie's Station, Cape May	1843		
Cold Spring Inlet, Cape May, New Jersey	1844		
Governor's Island, New York	1844	7	1
Sandy Hook, New Jersey	1844	8*a*	1
Do.....do	1844	8*b*	1
Governor's Island, New York	1844	9	1
Fort Adams, Newport, Rhode Island	1844	10	1
Do.....do.....do	1845		
Point Judith, Rhode Island	1845	11	1
Stonington, Connecticut	1845	12	1
Round Hill Light	1845	13	1
Bird Island Light			
Annapolis Harbor	1844	14	4
Do....do	1845		
Hell Gate and its vicinity, Long Island Sound	1845	15	1
Sandy Hook, New Jersey	1845	16	1
At Jackson's Wharf, Baltimore	1845	17	7
Governor's Island, New York	1845	18	1
Do.....do	1845	19	1
Jackson's Wharf, Baltimore	1845	20	4
Bodkin Light-house	1845		
Do	1846		
Jackson's Wharf, Baltimore	1846		
Governor's Island, New York	1846	21	1
Do.....do	1846	22	1
Sandy Hook, New Jersey	1846	23	1
Holmes' Hole, Massachusetts	1846	24	1
Edgartown	1846		
Nobsque Point, Woods' Hole	1846		

Dauphin Rock Light-house	1846	25	1
Nantucket	1846		
Edgartown	1846		
Holmes' Hole	1846		
Nobsque Light-house	1846		
Hyannis	1846	26	1
Fort Adams	1846		
Nantucket	1846		
Thomas's Point	1844	27	6
Delaware Breakwater	1844		
Jackson's Wharf, Baltimore	1845		
Annapolis, Maryland	1846	28	5
Governor's Island, New York	1847	29	1
Oyster Bay, Long Island	1847	30	2
Sheffield Island	1847	31	3
New Rochelle, New York	1847	32	3
New London, Connecticut	1847	33	3
Annapolis Harbor, Maryland	1847	34	5
Hyannis, Massachusetts	1846	35	7
Fort Adams, Rhode Island	1846		
Dauphin Rock Light, Massachusetts	1846		
Charlestown, Massachusetts	1846		
Holmes' Hole	1846		
Nobsque Light	1846		
Occasional Tidal Observations	1846		
Pool's Island Light-house	1846	36	4
Weem's Wharf, Herring Bay	1846		
Sand's Point, Long Island	1847	37	4
Throg's Neck, New York	1847		
Delaware Breakwater	1847	38	5
Cape May, New Jersey	1847		
Newcastle, Delaware	1847		
At North Brother, Long Island Sound	1847	39	3
Huntington Bay	1847		
Boston Light	1847	40	9
Boston Dry Dock	1848		
Do	1847		
Do	1847—1848		
Nantucket	1847		
Tarpaulin Cove	1847		
Quidnit, Nantucket	1847	41	8

IV.—TIDES.—*List of observations*—Continued.

Contents.	Year.	Bound in volumes.	Parts.
Edgartown	1847		
Hyannis	1847		
Nahant	1847		
President Roads	1847		
Hingham Harbor	1847		
Boston Light	1847		
Boston Dry Dock	1847	42	7
Tarpaulin Cove	1847		
Boston Light	1847		
Nahant	1847		
Edgartown	1847		
Hyannis Harbor	1847		
Quidnit	1847		
Nantucket	1847		
Fort Monroe, Old Point Comfort	1844	43	5
Do.....do	1845		
Do.....do	1846		
Do.....do	1847		
West End of Fisher's Island	1845		
Occasional Observations made in the Nautilus	1846		
Steamboat Landing, Cape Island	1847	43	5
Indian River	1847		
Buzzard's Bay	1845	44	1
Vineyard Sound	1845		
Point Judith	1844	45	1
Beavertail Light	1844		
Pune Island	1844		
Menamsha	1844		
Westport, Massachusetts	1844		
Fort Adams, Rhode Island	1844		
Cape Henlopen, Delaware	1844	46	1
Poole's Island	1846	47	1
Near Locust Point, Signal on Spesutie Island	1846		
Blackwell's Wharf, Havre de Grace	1846		

Bodkin Light-house	1846		
Jackson's Wharf, Baltimore	1846		
Dutchman's Point	1846		
Near Hilgard Station	1846		
Selby Bay, mouth of South River	1846		
Near Hilgard, 2d	1846		

Making, to date, 123 volumes Original Tidal Observations; to which add 10 for additional, 1848, making, to close of 1848, 133 volumes, bound in 51 volumes. Previous to 1844 the volumes were 8 original volumes, in 6 volumes, leaving, from 1844 to 1848, inclusive, 125 volumes, original, bound in 45 volumes.

The Current (since 1844) Observations are contained in 25 volumes, including those of 1848, and the Tidal Reductions in 8 volumes.

Previous to 1844 no regular sets of Current Observations were made.

IV.—Continued.

6. *List of maps drawn, engraved, printed, and published in office, and of geodetic and astronomical records.*

OFFICE COAST SURVEY,
Washington, December 26, 1848.

DEAR SIR: Since January, 1844, the following maps have been reduced and drawn, (topography and hydrography included:)

1st. The elaborated maps prepared for engraving are—

1, 2, 3. Delaware bay and river, sheets Nos. 1, 2, 3. (About one-quarter of the hydrography drawn since June. All was, however, drawn in 1844.)

4. New Bedford harbor.
5. Fisher's island sound.
6. New Haven.
7. Annapolis and Severn river.
8. New London.
9. Holmes's hole.
10. Tarpaulin cove.
11. Oyster bay.
12. Huntington bay.
13. Sheffield island harbor.
14. Sachem's Head harbor.
15. East river, for Long Island sound map.
16. South side of Long Island, No. 2.
17. do do No. 3.
18. Off-shore map, from Point Judith to Cape Henlopen.
19. Little Egg harbor.
20. Patapsco river and approaches.
21. Edgartown.
22. Nantucket.
23. New London, (redrawn from new survey.)
24. Cawkin's island.
25. Black Rock and Bridgeport.
26. No. 1, Long Island sound nearly redrawn.
32. Boston harbor and approaches, No. 1, 6 sheet map.
36. do do No. 2, 4 sheets finished.
37. No. 1, eastern series.
38. Pasquotank river.
39. Captain's island, east and west.
40. Mouth of Chester river.
41. Hyannis harbor.
42. Mouth of Connecticut river.

The following parts of maps have also been reduced and drawn:

1, 2, 3. The hydrography of Nos. 1, 2, and 3, Long Island sound.
(Additions to.) No. 5, New York bay and harbor.
do No. 6, do do
do New York bay and harbor scale $\frac{1}{80000}$.
$\frac{1}{3}$ of Long Island sound, sheet No. 2.

⅔ of Long Island sound, sheet No. 3.

¼ of topography, upper sheet, Chesapeake bay, and ½ of hydrography of sheet.

¼ of map of Boston harbor and approaches, (for engraving,) being 7 maps partly drawn and 3 having additions made to them.

The diagram, assemblage, and record maps of the office, 11 in number, have been brought up to the beginning of year 1847. Various maps, not so elaborately prepared as those for engraving, have been made for public purposes, disconnected from the coast survey, and furnished by directions of the Secretary of the Treasury. They are:

1. A map exhibiting the changes that have taken place at Sandy Hook.
2. A map of part of Chesapeake bay.
3. A map of Hell Gate.
4. A map of Mahon's river, and the channels leading to it from Delaware bay.
5. A map of part of the hydrography of Holmes's Hole for the Topographical Bureau.

Traced maps 9.

1. New Bedford.
2. Stratford harbor.
3. Southport harbor.
4. Norwalk harbor.
5. League island.
6. Mahon's river.
7. Little Egg harbor.
8. Hydrography at and below Philadelphia.
9. Pea Patch island and the vicinity.
10. Soundings off the coast of New Jersey.
11. From Princeton to Trenton.
12. From New Haven to New York.
13. Brandywine and Brown shoals, and vicinity.
14. Execution rocks and vicinity.
15. Naushon island.
16. Sandy Hook and the channels leading past it.
17. On the Patapsco river.
18. Hydrography near Cohasset rocks—in all 23 maps.

The sketches for the yearly report have been prepared, and the sketch maps of Nantucket New South shoal, entrance to Mobile bay, Ship Island harbor, Cat Island harbor, and Horn Island channel.

Models for topographical drawing and conventional signs have been made; projects for the maps of Boston harbor, Chesapeake bay, Mobile bay, Mississippi sound and the approaches to New Orleans; project maps for the plane-table work have been prepared, and a mass of tracings from maps for use in the survey.

The projections made in the office for plane-table and hydrographic parties are not included in the statement.

Recapitulation.

Number of maps reduced and drawn, 42.
Reduced and drawn in part, 10.
Less finished and traced maps, 23.
Sketch maps, 5.
Diagram, assemblage, and record maps, 11.
Besides project maps, models for topographical drawing and tracings, for use in survey. Sketches for yearly report.

Previous to 1844, the maps reduced and drawn were—

8. A map of New York bay and harbor in 8 sheets, 2 sheets being partly finished.
12. A map of New York bay and harbor, a duplicate of the above; ½ ditto finished, (4 sheets finished.)
13. A map of New York bay and harbor on one sheet.
15. Two sheets of Long Island sound map, and part of the third sheet.
16. One sheet of south shore Long Island sound map.

Four diagram and assemblage maps complete to date.

The following maps were prepared for Congress, and published as public documents:

1. Bridgeport harbor.
2. New Haven harbor.
3. Bay of Newark.

The four following were prepared for different bureaus of the government:

4. A map of entrance to New York harbor, for light-house department.
5. A map of Thames river, for Secretary of the Treasury.
6. A map of the hydrography at Sandy Hook, for Topographical Bureau.
7. A map of the north shore Long Island sound at New London.

We have therefore, from the beginning of the survey to January, 1844, 16 maps, or sheets of maps, reduced and drawn in the most elaborate manner, suitable for highly finished engraving; 1 map of the same kind partly drawn; 7 maps drawn in a less finished style; 4 diagram and assemblage maps, besides tracings for use in the survey.

The total number of maps and sheets prepared (elaborately reduced and drawn) is 59; maps partly prepared, 10; diagram and assemblage maps complete, 4; incomplete, 7.

The maps prepared, and furnished by special directions of the Treasury Department, are not included in the above number—such as the diagram exhibiting changes at Sandy Hook, map of part of Chesapeake bay, Hell Gate, &c., &c., and the traced maps of harbors, channels, topography, &c., &c. They are 30 in number. Nor are the 5 preliminary sketch maps prepared and published, exhibiting important shoals and channels discovered by the coast survey, included in the number. The project maps in the office, and tracings for use in the survey, are likewise excluded, as forming

properly no part of the results of the survey, but rather of its working material.

The maps engraved are—

1. New York bay and harbor and approaches, in six sheets; New York bay and harbor, in one sheet; New Bedford, Annapolis, New Haven, Little Egg harbor, Holmes's Hole and Tarpaulin cove, New London, Fisher's Island sound, Oyster bay, Black Rock and Bridgeport, Edgartown, Delaware bay and river, in three sheets; Long Island sound, No. 3, Nantucket, Huntington bay; being 23 plates finished.

Maps, the engraving of which is nearly finished, being five in number, viz: South side Long Island, No. 1; Cawkins and Sheffield island, Patapsco river and approaches, mouth of Chester river, Long Island sound, No. 2.

Maps, the engraving of which is not so far advanced as those just enumerated, being six in number, viz: Long Island sound, No. 2; off shore map; Chesapeake bay, No. 1; Captain's Island harbor; eastern series, No. 1; Hyannis harbor.

The total of plates engraved, or partly engraved, is therefore 34.

IV.—

Table showing the number of maps printed,

YEARS.	New York Bay and Harbor, $\frac{1}{30,000}$.—Sheets of, No.	New York Bay and Harbor, $\frac{1}{80,000}$.—Copies of, No.	New Bedford.	Annapolis.	New Haven.	Little Egg Harbor.
Maps printed in 1844	1,275	.....	.....	.....	.....	.....
Do 1845	4,247	1,440	.....	.....	.....	.....
Do 1846	985	200	922	675	.....	.....
Do 1847	120	484	645	380	1,481	1,061
Do 1848	277	441	315	262	350	255
Total printed to November 1, 1848....	6,904	2,565	1,882	1,317	1,831	1,316
Number of maps distributed.						
Institutions, government, and foreign governments, in 1844	676	.....	.....	.....	.....	.....
Do.....do.....do 1845	222	194	.....	.....	.....	.....
Do.....do.....do 1846	880	36	300	300	.....	.....
Do.....do.....do 1848	42	161	.....	.....	.....	.....
Special authority, use on survey, in 1844	.....	.....	.....	.....	.....	.....
Do.....do.....do 1845	76	10	.....	.....	.....	.....
Do.....do.....do 1846	342	69	144	80	.....	.....
Do.....do.....do 1847	168	47	31	35	405	531
Do.....do.....do 1848	186	70	47	34	60	40
Total distributed to November, 1848...	2,592	587	522	449	465	571
Number of maps sent to sale agents.						
In....1845	1,260	630	.....	.....	.....	.....
In....1846	360	211	435	135	.....	.....
In....1847	594	588	674	347	732	601
In....1848	150	192	170	240	335	375
Total number sent to sale agents	2,364	1,621	1,279	722	1,067	976

Continued.

distributed, and turned over to agent for sale.

Holmes's Hole and Tarpaulin Cove.	New London.	Fisher's Island Sound.	Oyster Bay.	Black Rock and Bridgeport.	Edgartown.	Delaware Bay, in 3 sheets.—No. of sheets.	Long Island Sound, No. 3.	Nantucket.	Huntington Bay.	Sketch maps.				Aggregate of maps printed, distributed, and sent to sale agents, exclusive of sketches.
										New S. Shoals, Nantucket.	Horn Island Channel.	Entrance Mobile Bay.	Cat Island Harbor.	
.....	.....	.....	.....	....	....	.....	....	....	....	.....	....	....	....	.....
.....	.....	.....	.....	....	....	.....	....	....	....	.....	....	....	....	.....
.....	.....	615	.....	....	....	168	....	....	....	300	....	....	....	.....
1,471	.....	240	1,140	....	....	225	....	....	....	200	200	....	....	.....
100	770	841	.....	898	974	1,967	25	....	....	1,100	....	....	....	.....
1,571	770	1,696	1,140	898	974	1,360	25	....	....	1,800	....	....	....	24,249
.....	.....	.....	.....	....	....	.....	....	....	....	.....	....	....	....	.....
.....	.....	.....	.....	....	....	.....	....	....	....	.....	....	....	....	.....
.....	.....	.....	.....	....	....	.....	....	....	....	.....	....	....	....	.....
357	357	.....	357	362	362	.....	....	....	....	.....	....	....	....	.....
.....	.....	.....	.....	....	....	.....	....	....	....	.....	....	....	....	.....
.....	.....	.....	.....	....	....	.....	....	....	....	.....	....	....	....	.....
.....	.....	17	.....	....	....	39	....	....	....	.....	....	....	....	.....
31	.....	53	2	....	....	67	....	....	....	294	....	....	....	.....
90	80	63	87	63	63	34	8	....	....	1,200	....	....	....	.....
478	437	133	446	425	425	140	8	....	....	1,500	....	....	....	7,678
.....	.....	.....	.....	....	....	.....	....	....	....	.....	....	....	....	1,890
.....	.....	195	.....	....	....	90	....	....	....	.....	....	....	....	1,426
.....	.....	231	290	....	....	127	....	....	....	.....	....	....	....	4,831
.....	325	550	200	194	228	1,743	....	....	....	.....	....	....	....	4,832
.....	325	976	590	194	228	1,960	....	....	....	.....	....	....	....	12,979

Table showing the number of volumes of geodetic and astronomical observations and computations, &c., including astronomical and telegraphic observations and computations for differences of longitude.

Date.	No. of volumes of geodetic observations.	No. of volumes of geodetic observations.	No. of volumes of geodetic computations.	No. of volumes of astronomical observations, containing, in part, computations.	No. of volumes of astronomical observations, with original computations.	No. of volumes of magnetic observations and computations.		Meteorological observations.		Observations and computations for difference of longitude.	Aggregate.
	Original.	Duplicate.		Original.	Duplicate.	Original.	Duplicate.	Original.	Duplicate.		
Previous to 1832.....	4	1	1	1	2	.....	.....	.....	.....	.....	9
1832—1843.....	95	26	78	16	4	4	.....	2	.....	.....	225
In 1844.....	36	18	28	24	20	1	.....	2	1	.....	130
1845.....	37	23	29	22	16	4	2	1	.....	.....	134
1846.....	45	28	22	22	13	5	2	1	.....	.....	138
1847.....	53	27	27	33	41	12	5	1	.....	.....	199
Total 1844—1847.....	171	96	106	101	90	22	9	5	1	.....	601
In 1848, estimated.....	62	32	32	39	48	15	6	2	2	.....	238
Total 1844—1849.....	233	128	138	140	138	37	15	7	3	66	905
Total 1832—1849.....	332	155	217	157	144	41	15	9	3	66	1,139

Very respectfully, your obedient servant,

A. A. HUMPHREYS.

To Professor A. D. BACHE, *Superintendent U. S. Coast Survey, Washington.*

PROPERTY ON HAND.

1. Instruments.

Note.—The instruments to the names of which no prices are affixed, were purchased between 1807 and 1819. The total cost of the collection, as stated by Mr. Hassler, was $18,247 39.

The first column contains the value of the instruments purchased or made between 1832 and 1844, as estimated by the mechanician of the Coast Survey. The value of those made in the office, and the cost of those purchased between 1844 and 1849, is stated in the second column.

A recapitulation is made at the end of this list.

24-inch	Theodolite, made by Troughton & Simms, 1814		
30 "	.....do.....do.....do	$2,300 00	
24 "	Vertical Circle.....do.....do		
	Brass stand for the same, made in the office	1,000 00	
18 "	Theodolite, by Troughton & Simms	900 00	
18 "	....do.... made of old Circle in the office, marked " E Pluribus Unum"	500 00	
12 "	Repeating Theodolite, with Vertical Circle, by Troughton & Simms	900 00	
9 "	Theodolite, with folding stand, made in the office	300 00	
10 "	....do.....by Richer	150 00	
8 "	....do.....by Briethaupt	200 00	
12 "	....do.....by Simms	500 00	
6 "	Repeating Theodolite, by Gambey, 1844		$375 00
6 "	....do.....do.....upper part made in the office, 1845		400 00
12 "	....do.....do.....by Patten		910 00
10 "	....do.....do.....by Gambey, 1847		494 42
12 "	....do.....do.....do		771 12
6 "	Theodolite, plane-table attachment, by Oertel		225 00
6 "	Repeating Theodolite, by Gambey, 1848		375 00
12 "	....do.....do.....by Troughton & Simms, 1848		545 00
10 "	Theodolite, by Gambey, 1848		400 00
6 "	Repeating Theodolite, by Gambey, 1848		375 00
6 "	....do.....do.....by Troughton & Simms, 1848		341 48

IV.—*Property on hand—Instruments*—Continued.

	Zenith and Equal Altitude Instrument. Telescope $2\frac{3}{4}$ inches diameter, with extra levels, &c., by Troughton & Simms, 1847		$480 39
	Zenith Sector, with iron frame. Telescope $3\frac{1}{4}$ inches diameter, with meridian adjusting screws, by Troughton & Simms		3,098 47
	Zenith and Equal Altitude Instrument. Telescope $2\frac{3}{4}$ inches diameter, with extra levels, &c., by Troughton & Simms, 1848		490 00
	18-inch Repeating Circle, with 2 feet Telescope, by Troughton		
3	12 " ....do....Reflecting Circles, with brass stand and Horizon		
1	12 " ....do.....do.....without stand		
1	Transportable Astronomical Clock, with level, arrangements by Brockbank		
1	Astronomical Clock, by Hardy		
1	Three Hundredth Second Watch, by Hardy		
1	Double Wire Micrometer, by Dolland		
1	Box Chronometer, (2 days,) No. 736, by Brockbank		
1	.....do.....No. 50, by Hardy		
1	.....do.....No. 51....do		
1	.....do.....siderial...No. 1911, Parkinson & Frodsham, 1845		300 00
1	.....do.....No. 1838, Dent, 1846		215 00
1	.....do.....siderial...No. 2701, Parkinson & Frodsham, 1847		300 00
1	.....do.....No. 2553.....do.....do		300 00
1	.....do.....siderial...No 2637.....do.....do.....1848		300 00
1	.....do.....No. 2147, Dent		230 00
1	Gold Watch, by Roskell, No. 2717	$60 00	
8	Silver Watches	120 00	
2	.....do.....purchased in 1844		60 00
2	.....do.....do.....1846		22 00
5	.....do.....do.....1847		82 50
4	.....do.....do.....1848		74 00
1	Sextant, with brass stand, by Troughton		
3	...do...by Troughton & Simms		
8	...do...of different makers	400 00	
1	...do...purchased in 1844		55 00
3	...do.....do.....1846		75 00
3	...do.....do.....1847		105 00
3	...do..Gambey, purchased in 1848		291 00
3	...do..different makers, 1848		165 00
2	5-feet Observatory Transit Telescope, by Troughton		

1	Transit Instrument (Hassler) stand made in the office		
1	45-inch Transit Instrument, by Troughton & Simms, 1846		868 26
2	small Transit Instruments, by Temple, 1847		250 00
2	46-inch Transit Instruments, by Troughton & Simms, 1848		1,562 39
1	6-feet Telescope, with stand, in 3 parts, by Dolland		
1	5 " ....do....Equatorial, with stand.....do		
1	4¾ " ....do....in two parts, by Tully		
1	3½ " ....do....by Dolland		
1	Reflecting Telescope, brass stand, by Troughton		
1	3-inch Dialöptic Telescope, with equatorial stand, by Plossel		
4	3½ " Telescopes.....by Frauenhofer & Utzschneider	350 00	
4	2½ " ....do.....do.....	640 00	
1	3 " ....do....wooden tube .....do.....1845	400 00	
2	2½ " ....do....brass tubes....by Maerz & Son.....1846		80 00
2	2 " ....do.....do.....1846		377 80
1	2½ " ....do....wooden tube ..by Frauenhofer 1848		65 00
1	2 " ....do.....do..... ....do.....1848		45 00
4	2 " ....do....brass tubes....by Maerz & Son.....1848		230 00
13	Hand Telescopes and Spy-glasses	260 00	
5	.....do.....purchased in 1844		84 00
1	.....do.....do.....1845		7 50
5	.....do.....do.....1846		43 00
7	.....do.....do.....1847		76 50
4	.....do.....do.....1848		49 00
1	Velocimeter of John St. John...1848		200 00
4	Heliotropes, on brass stands, by Gauss	400 00	
3	Heliotropes.....do....made in the office	225 00	
3	....do.....do.....do		225 00
2	Auxiliary Heliotropes.....do	60 00	
6	....do.....do.....do		180 00
1	Heliostat of Silbermann, purchased in 1846		79 23
11	Artificial Horizons, with Mercury Flasks, &c., different sizes	66 00	
2	....do.....do.... purchased in 1844, complete		60 00
2	Camera Lucidas, with Eye-glasses complete, for reducing drawings, purchased in 1844		126 24
1	Camera Obscura, for sketching, purchased in 1846		15 75
6	Barometers	120 00	
4	....do.... purchased in 1844		71 00
1	....do.....do.....1845		15 00
3	....do.....do.....1846		45 00
3	....do.....do.....1847		60 50
1	....do.....do.....1848		20 00

IV.—*Property on hand—Instruments*—Continued.

7	Thermometers, by Troughton & Simms		
6	....do....purchased in 1844		$30 00
3	....do....do....1845		13 00
1	....do....do....1846		6 00
5	....do....do....1847		21 12
4	Marine Thermometers, purchased in 1844		120 00
3	....do....do....1845		49 00
2	....do....do....1846		25 50
6	....do....do....1847		97 50
3	Metallic Thermometers, by Jurgensen & Son, 1848		116 85
1	Sounding Apparatus, ...purchased in 1844		12 00
10	Stellwagen and other leads....do....1845		80 00
13	....do....do....do....1847		67 50
1	Maury's Patent Log and Sounding Tubes, purchased in 1848		121 00
1	Tide Register, purchased in 1844		
1	Current Log....do....1844		52 75
1	Tide Guage....do....1844		
2	Tide Boxes....do....1846		14 40
2	Unifilar Magnetometers and Stand, Nos. 3 and 4, by Jones, 1844		248 00
1	Theodolite....do....No. 3 ....do....1848		182 66
1	Declinometer and Stand, with 5-inch Theodolite, No. 22, by Jones, 1844		189 08
1	....do....do....No. 20....do....1848		188 19
1	Dip Circle, by Patten, 1845		200 00
1	....do....by Barrow, 1846		125 93
1	....do....by Robinson, 1846		75 00
1	....do....by Barrow, 1848 (10-inch)		166 78
2	Alidades and 1 Plane-table Movement		
9	....do....9....do....do	$1,440 00	
3	....do....3....do....do		480 00
1	Large Azimuth Compass, of Jones		
3	Azimuth Compasses	200 00	
3	...do....do....purchased in 1841		67 00
5	...do....do....do....1845		169 50
2	Transit....do....do....1846		225 75
1	Prismatic....do....do....1847		50 00
1	Azimuth....do....do....1848		25 00
1	Pocket....do....do....1848		11 00

100

2	Sets of 2 Bar Magnets	20 00	
3	Telegraphic Registers and Batteries, purchased in 1846		375 00
2	Station Light Apparatus.....do.....1844		53 75
25	20 Metre Chains.....made in the office		375 00
2	Parallel Ruling Instruments.....do	132 00	
1	.....do.....do		66 00
1	3 Arm Protractor (brass) by Richer		
3	3....do	225 00	
2	3....do		150 00
1	Circular Protractor, with Vernier Readings		10 00
1	3 Arm Protractor, purchased in 1847		75 50
1	1....do	20 00	
1	56-inch Brass Beam Compass, with 2 rods and Magnifiers, by Fidler		
2	45-inch Graduated Brass Beam Compasses, by Briethaught	80 00	
1	58-inch German Silver..do.....do	40 00	
2	32-inch.....do.....do.....do....made in the office	80 00	
2	21-inch Steel.....do.....do.....do	40 00	
2	18-inch do.....do.....do.....do	36 00	
1	17-inch do.....do.....do.....do		15 00
1	16-inch do.....do.....do.....do		14 00
6	.....do.....do.....do.....do.....(different sizes)		72 00
1	Steel Ruler, 8 feet long		
2	....do.....8....do	60 00	
6	....do.....5....do	90 00	
6	....do.....5....do		90 00
6	Steel Rulers, $3\frac{1}{2}$ feet long	60 00	
6	.....do.....$2\frac{1}{2}$....do	42 00	
6	.....do.....$2\frac{1}{2}$....do		42 00
6	.....do.....2.....do		30 00
4	Graduated Brass Triangles, made in the office	40 00	
8	Brass and Steel Triangles, made in the office	24 00	
10	Brass and Steel Triangles, different sizes, made in the office		30 00
1	1-Metre Scale, (brass,) by Richer, of Paris		
1	1 " .....do.....by Briethaupt		
1	1 " .....do.....made in the office	32 00	
4	1 " .....do.....do		128 00
9	.....do.....do	90 00	
15	.....do.....do.....of different lengths		150 00
1	4-feet Dividing Engine, by Troughton & Simms	4,000 00	
1	30-inch.....do..... by Bird		
1	Tracing Apparatus, made in the office	100 00	

IV.—*Property on hand—Instruments*—Continued.

1 Level Tryer, with Micrometer screws, made in the office	$50 00	
4 Micrometer Microscopes, with reflectors.....do	120 00	
1 82-inch Scale, with Microscope Apparatus, divided on silver, by Troughton & Simms		
1 Brass Metre, by Lenoir		
1 Iron Metre.....do		
1 Iron Toise.....do		
1 Scale Beam and grain weights, by Troughton		
2 Sub-divided Kilogrammes		
2 Litres Modeles		
2 Pairs Proportional Dividers		
1 Base Apparatus, (Hassler's,) English construction		
1 Base Apparatus, (Bache's,) compensating, made in the office		$5,000 00
	16,872 00	26,598 81

RECAPITULATION.

1. The cost of instruments purchased between 1807 and 1819, was $18,247 39. Their present value is estimated at	$15,000 00
2. The estimated value of instruments purchased between 1832 and 1844, is, by the foregoing list	16,872 00
3. The value of instruments purchased and made in the office between 1844 and 1849, is, by the foregoing list	26,598 81
Total value of instruments on hand	58,470 81

IV.—Continued.

2. Engraved Copperplates.

No. 1. New York Bay and Harbor	1/80,000
2.....do.....do.....No. 1 3.....do.....do.....2 4.....do.....do.....3 5.....do.....do.....4 6.....do.....do.....5 7.....do.....do.....6	1/30,000
8. Part of the Southern Coast of Long Island, No. 1	1/80,000
9. Map of Delaware Bay and River, No. 1 10.....do.....do.....2 11.....do.....do.....3	1/80,000
12. The Harbor of New Bedford	1/40,000
13. The Harbor of New London	1/20,000
14. Fisher's Island Sound	1/40,000
15. Holmes's Hole and Tarpaulin Cove	1/20,000
16. Oyster or Syosset Bay	1/30,000
17. Little Egg Harbor	1/30,000
18. Harbor of Annapolis	1/60,000
19. New Haven Harbor	1/30,000
20. Harbor of Edgartown	1/20,000
21. Harbors of Black Rock and Bridgeport	1/20,000
22. Huntington Bay	1/20,000
23. Nantucket Harbor	1/20,000
24. Harbors of Sheffield Island and Cawkin's Island	1/20,000
25. Plate of Shades, for the expression of hills. 26. Plate containing style and scale for lettering. 27.....do.....Views in the approach to New York Harbor. 28.....do.....Circular protractor.	
29. Long Island Sound, No. 1 30.....do.....2 31.....do.....3	1/80,000
32. General chart of the Coast	1/400,000
33. Eastern series, No. 1	1/80,000
34. Patapsco River	1/60,000
35. Mouth of Chester River	1/20,000
36. Harbors of Captain's Island	1/20,000

IV.—*Engraved Copperplates*—Continued.

Electrotypes.

No. 37. 1 alto relievo, and copy.—The Harbor of New Bedford.
38. 1.....do.....do.....New Haven Harbor.
39. 1.....do.....do.....Little Egg Harbor.
40. 1.....do.....do.....The Harbor of New London.
41. 1.....do.....do.....Long Island Sound, No. 2.
42. 1.....do.....do.....do.....3.
43. 1.....do.....do.....do.....3.
44. 1.....do.....do.....Nantucket Shoals.
45. 1.....do.....no copy....Delaware Bay and River, No. 2.
46. 1 blank plate, 39½ by 28½.
47. 1..... do....21 by 18.

Engraved Sketches, to accompany yearly reports.

16 engraved copperplates.

The value of these plates, estimating each class (large plates, harbor plates, electrotypes, and sketches separately) is, in gross, $44,800.

3. Library.

The Library contains 655 volumes for reference in the survey.

Among the names of the authors in the list of books on Astronomy, Geodesy, Surveying, &c., are Bradley, Bouvard, Burkhardt, Biot, and Arago, Burg, Bessel, Baily, Babbage, Barlow, Bowditch, Bode, Cagnoli, Callet, Damoiseau, Delambre, Des Barres, Encke, Everest, Flamsteed, Francœur, Fisher, Gauss, Gerling, Herschel, Kupffer, Kreill, Laplace, Lalande, Lindenau, Littrow, Lacaille, Lehman, Maskelyne, Mädler, Olbers, Piazzi, Pearson, Puissan, Riddell, Rennell, Struve, Schumacher, Svanberg, Taylor, Ventuoli, Vega, Vancouver, Wollaston.

The following works are in the Library: Catalogue of Stars of the British Association, (9 copies;) Connaissance des tems, (23 volumes;) Berlin Ephemerides, (25 volumes;) British Nautical Almanac, (19 volumes;) Greenwich Astronomical Observations from 1829 to 1846; Memorial du dépot de la guerre, (7 vols.;) Trigonometrical Survey of England, (3 vols.)

The estimated value of the collection is $2,500 00.

4. Mechanician Shop.

1 large turning lathe, with cast iron frame, shears, wheels, and heads, with sliding mandril, one 16-inch and one 9-inch slide rest, three common rests, one universal chuck, one brass plain chuck, ten cast iron chucks for wood, &c., one French centre chuck, six brass screw registers, one wood screw chuck..	$800 00
1 turning lathe, with cast iron shears, heads, and wheel, wooden frame, one plain brass chuck, two brass chucks for wood, one wooden centre chuck, and eight various small chucks	175 00
1 small turning lathe, with cast iron shears, head, and wheel, wooden frame, and 8 chucks for various purposes	65 00
1 watch-maker's turning bench	20 00
3 bench vices	34 00
1 small parallel vice	9 00
1 iron plane	12 00
1 patent screw wrench	2 50
1 boring apparatus	10 00
1 pair of screw-cutting stocks, with fourteen pairs of dies, eighteen die-taps, and thirty-four other taps	100 00
1 small pair of screw stocks, with fourteen pairs of dies, thirty-two die-taps..	50 00

IV.—*Mechanician Shop*—Continued.

1 small pair of brass screw stocks, with five pairs of dies and ten taps	$20 00
2 screw plates and taps	6 00
2 anvils, stakes, and blocks	20 00
2 sheet shears, (large and small)	6 25
3 iron-frame saws, (different sizes)	7 00
4 hand vices	4 50
2 28-inch cast steel straight-edges	20 00
2 brass and steel squares	10 00
3 tail hand vices	3 00
2 lathe squares	8 00
1 T square	4 00
7 pairs plyers	5 00
4 pairs spring compasses	4 75
3 pairs spring calipers	3 00
2 pairs joint calipers	2 50
1 forging hammer	75
2 smoothing hammers	3 25
4 bench hammers	4 00
2 drill stocks and drills	10 00
2 cast steel cutters	12 00
3 reamers and brackers	2 00
22 lathe drills	5 50
1 brace with 20 bits	4 00
32 chasing tools for screws	16 00
10 gouges and chisels, for wood turning	5 00
34 turning tools, screw-drivers, &c.	12 75
2 wood saws, (hand saw and buck saw)	3 00
1 grindstone, with trough and stand	8 00
3 oilstones	6 00
8 Scotch stones	2 00
2 beam compasses, mandrills	8 00
56 dozen new files, (of all sizes and shapes)	270 00
1 pair soldering tongs	1 00
1 soldering club	1 50
6 brass clamping screws	15 00
1 blowpipe and spirit lamp	8 00
2 oil cans	50
3 decanters for varnish and alcohol	2 00
1 pair smith bellows	6 00
1 case with drawers	4 00
1 tool chest	1 00
1 box with various patterns	15 00
1 coal stove, with pipe, coal bucket, and sifter	5 00
1 drawing-knife	1 50
	1,834 25

The Printing Office contains—

2 large iron printing presses,	
1 large iron paper press,	
Iron boiler and fixtures for heating plates, inks, &c.—Estimated value	$1,600 00
The cost of paper on hand is about	2,200 00
	3,800 00
The value of Coast Survey charts in hands of agents, December 31, 1848	1,270 00

5. Field Equipments.

3	wagons.....estimated value.....	$210 00
	Harness for 3 horses.....do.....	10 00
11	boats in use by topographical parties...do.....	440 00
55	oars.....do.....	55 00
44	large tents.....do.....	880 00
38	small..do.....do.....	570 00
4	instrument tents.....do.....	60 00
65	flies.....do.....	650 00
50	tarpaulins.....do.....	400 00
35	axes.....do.....	35 00
30	hatchets.....do.....	15 00
16	hammers.....do.....	8 00
24	spades.....do.....	12 00
7	crow bars.....do.....	7 00
30	saws.....do.....	15 00
21	planes.....do.....	10 00
32	augurs.....do.....	6 00
149	blankets.....do.....	149 00
57	cotts.....do.....	57 00
33	tables.....do.....	66 00
61	camp stools.....do.....	20 00
25	stoves.....do.....	75 00
		3,750 50

6. Vessels.

Purchased from coast survey appropriations, from 1832 *to* to 1844.

Brig Washington,	cost $14,000; valued at, in 1849.....	$10,000 00
Schooner Nautilus,	cost 8,000;.....do.....	5,000 00
Gallatin,	cost 10,000;.....do.....	5,000 00
Vanderbilt,	cost 3,000;.....do.....	2,500 00

Purchased from 1844 *to* 1849.

Schooner Bancroft, in 1846, cost.....	2,098 42
George M. Bache, in 1847, cost.....	3,440 94
J. Y. Mason, in 1847, cost.....	3,181 75
Nymph, in 1848, cost.....	1,366 63
	32,587 74

Transferred from the Navy Department.

Schooners Petrel, F. H. Gerdes, Wave, and Phœnix.

Transferred from the revenue marine service.

Steamers Bibb, Walker, and Legaré.

Transferred from the quartermaster general's department, U. S. A.

Schooners Hetzell, (steamer,) Captain Morris, and Belle.

Very respectfully submitted by

A. D. BACHE,
Superintendent U. S. coast survey.

Hon. R. J. Walker,
Secretary of the Treasury.

A.

Coast survey expenditures from 1807 *to* 1819.

Total amount expended	$55,375 12
Of this sum there was paid for instruments, to 1819	18,247 39

The sum expended was derived as follows:

1807.	Appropriation	$50,000 00
1812.	Re-appropriation	49,284 25
1816.	do	29,720 57
1816.	Appropriation	54,720 57
		183,725 39

Deduct—

1809.	Amount carried to surplus fund	$49,284 25	
1814.	do do	29,720 57	
1818, December 31.	Amount transferred to War Department	49,345 45	
			128,350 27
			55,375 12

—

Coast survey expenditures from July, 1832, *to December* 31, 1843

Total amount expended	$766,134 18

The sum expended was derived as follows:

1832.	Appropriation	$20,000 00
1833.	do	20,000 00
1834.	do	30,000 00
1835.	do	30,000 00
1836.	do	80,000 00
1837.	do	60,000 00
1838.	do	90,000 00
1839.	do	90,000 00
1840.	do	100,000 00
1841.	do	100,000 00
1842.	do	100,000 00
1843, December 31.	From appropriation for 1843'–44	46,134 18
		766,134 18

Coast survey expenditures from January 1, 1844, to December 31, 1848.

1844.	Calendar year	$96,704 45
1845.	do	92,769 18
1846.	do	112,824 55
1847.	do	125,291 81
1848 to January 1, 1849		151,660 33
	Total amount expended	579,250 32

The amounts expended have been derived as follows:

1844, Jan. 1.	Balance on hand from appropriation for 1843'–44	$53,865 82
	Appropriation for 1844–'45	80,000 00
	Do 1845–'46	100,000 00
	Do 1846–'47	111,000 00
	Do 1847–'48	146,000 00
1848, December 31.	From appropriation for 1848–'49	85,615 81
		576,481 63
	From sales of condemned coast survey property, and sale of maps, to December 31, 1848	2,768 69
		579,250 32
	Property on hand January 1, 1849, value	$149,513 30

Respectfully submitted.

SAM. HEIN,
Disbursing agent coast survey.

TREASURY DEPARTMENT,
Washington, February 13, 1849.

SIR: I have the honor to communicate to the Senate a reply received this day to my letter of 5th January, addressed to the Navy Department, asking the amount expended for pay and rations of officers and men of the naval establishment, detailed under the law for coast survey service.

Not including the pay of officers, on the supposition that they would, if not on coast survey service, have been on other duty, the amounts payable from the naval appropriations in the periods referred to in the resolutions of the Senate, of December 27, are as follows:

1. From 1834, when the hydrography was commenced, to 1841, (Doc. House Representatives, No. 57, 27th Congress, 2d session)	$88,857
2. From 1841 to 1844	35,523
Total	124,380
3. From 1844 to 1849	127,837
Total, 1834 to 1849	252,217

Including the pay of officers, the amount stated by the Hon. Secretary Upshur, to November, 1841, was $114,584. The amount from that time to 1844 is now stated at $50,876 96, making, up to 1844, $165,454 96. The amount since 1844, and up to 1849, is stated at $192,664 69.

The current expenses of the hydrography, including the cost of sailing the vessels, the fuel for steam, repairs generally to vessels and engines, ship chandlery, and the like, are borne from the direct coast survey appropriations.

The amount of hydrographic work executed during the two periods was as follows:

	1834 to 1844.	
Soundings	9,623*	square miles.
	808,147	number.
Gulf stream, soundings for temperature	0	"
Regular current stations	0	"
Tidal stations	13	"
Specimens of bottom	500	"

	1844 to 1849.	
Soundings	15,086†	square miles.
	950,202	number.
Gulf stream, soundings for temperature	1,410	"
Regular current stations	160	"
Tidal stations	40	"
Specimens of bottom	4,098	"

Very respectfully, your obedient servant,

R. J. WALKER,
Secretary of the Treasury.

Hon. GEORGE M. DALLAS,
Vice President of the United States,
and President of the Senate.

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* 5,000 deep sea, or off shore soundings.
† 10,000 deep sea, or off shore soundings.

NAVY DEPARTMENT,
February 12, 1849.

SIR: In reply to your letter of the 5th ultimo, I have the honor to transmit herewith a report and tabular statement, furnished at my request, by the Fourth Auditor of the Treasury, "showing the sums indirectly expended upon the coast survey, by the employment of a part of the naval force therein" within the periods indicated.

I am, very respectfully, your obedient servant,
J. Y. MASON.

Hon. ROBERT J. WALKER,
Secretary of the Treasury.

TREASURY DEPARTMENT,
Fourth Auditor's Office,
February 5, 1849.

SIR: A letter addressed to you on the 5th ultimo by the Secretary of the Treasury, requesting information of the sum indirectly expended upon the coast survey by the employment of a part of the naval force thereon from the 1st of December, 1841, to the close of the year 1848—stating the same particulars as were given in respect to a previous period in a communication to the Treasury Department from the Hon. A. P. Upshur, while Secretary of the Navy, and distinguishing between the several amounts expended prior to January, 1844, and subsequently thereto—having been referred to this office for a report, I have the honor to enclose a statement containing a near approximation to the amounts required. The minute examination of all the accounts in this office, upon which officers or men connected with the survey were borne during so many years, which would have been necessary to ensure perfect exactness, would have consumed so much time that the information could scarcely have been afforded in season to be used at the present session of Congress. As all the naval officers employed on the survey, with two or three exceptions, have been of the grade of lieutenant or passed midshipman—if, as the Secretary of the Treasury suggests, it should be presumed that, if not thus employed, they would have been "on other duty"—then there has been no additional expenditure, or a very trifling one, on account of their pay—since the compensation of a lieutenant or passed midshipman is the same whether he is on sea service or "other duty." Unless on sea service, however, no officer is entitled to rations, and their value would still be included in the statement.

I have the honor to be, sir, very respectfully,
Your obedient servant,
A. O. DAYTON.

Hon. JOHN Y. MASON,
Secretary of the Navy.

Statement showing the amount of the difference between the sea service pay and leave of absence pay of the officers of the navy engaged in the coast survey from December 1, 1841, *to December* 31, 1848, *the value of their rations, the pay of the crews of the vessels employed on the said service, and the value of their rations for the same period—distinguishing between the amounts thus expended before and after the* 1st *January*, 1844:

Sea service pay of officers prior to 1st January, 1844.....	$55,344 58		
Estimated leave pay for the same period.....	39,996 62		
Difference.....		$15,347 96	
Rations of officers for the same period.....		3,065 00	
Pay of crews for the same period.....		21,378 00	
Rations of crews for the same period.....		11,080 00	
			$50,870 96
Sea service pay of officers subsequent to January 1, 1844..	207,584 25		
Estimated leave pay for the same period.....	142,757 16		
Difference.....		64,827 09	
Rations of officers for the same period.....		11,998 60	
Pay of crews for the same period.....		81,953 00	
Rations of crews for the same period.....		33,886 00	
			192,664 69
			$243,535 65

TREASURY DEPARTMENT,
Fourth Auditor's Office,
February 5, 1849.

A. O. DAYTON.